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CHARACTERISTICS AND CHANGES IN THE KENTUCKY ECONOMY, 1970-1983

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Characteristics and Changes in the Kentucky Economy, 1970-1983
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CHARACTERISTICS AND CHANGES IN THE KENTUCKY ECONOMY, 1970-1983

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FOREWORD

State and regional economies change in response to both external and internal factors. Such change can take the form of structural employment and income shifts between and among major economic sectors, differential growth rates among regions and sectors and, changes in economic well-being typically expressed in terms of personal income. The purpose of this report on the Kentucky economy is to highlight the socio-economic changes which have occurred over the past few decades in Kentucky. This perspective on long-term economic changes should assist policy-makers, business analysts, corporate planners and citizens to understand more about the economic changes Kentucky has experienced over time and to gain a perspective on the current status of our economy. With such understanding, decision makers will be, hopefully, better prepared to analyze the ways and means of augmenting desirable change and mitigating against undesirable economic and social trends in the future.

To put Kentucky's economic changes in perspective, Professor Don Soule has analyzed adjustments in Kentucky's population, labor force, earnings per worker, durable and nondurable manufacturing and the like in relation to changes in comparable variables for the national economy. From this analysis readers can gain a better understanding of whether the Kentucky economy has tended to follow the waves of national economic fluctuations or whether changes in the Kentucky economy are in a direction separate and distinct from national economic adjustments.

The composite set of analyses in this report should, then, be considered a factual and retrospective review of adjustments in the socio-economic environment of Kentucky. The report should, consequently, provide insights into where the economy has been, an understanding of where it currently is, and a basis for analyzing where it may be headed in the future.

By publishing this report, the College of Business and Economics, through its Center for Business and Economic Research, attests that it is a competent treatment of a significant subject which represents another major effort in meeting the College's service and research responsibility to the Commonwealth of Kentucky. The opinions expressed are, of course, those of the authors and do not, necessarily, represent any positions or opinions of the College of Business and Economics or the University of Kentucky.

Merl M. Hackbart
Associate Dean for Graduate Studies
and Research

EDITOR'S PREFACE

Preparation of the *Commonwealth of Kentucky Annual Economic Report* has been undertaken as an activity of the Research and Publications Programs of the Center for Business and Economic Research, College of Business and Economics, University of Kentucky on behalf of the Kentucky Council of Economic Advisors. The report is intended to provide an objective review of the performance of the Kentucky economy over recent years.

Much of the analysis within this report is focused upon Kentucky and U.S. Total Personal Income, or upon some of the components of Total Personal Income. Total Personal Income is generally used as the most comprehensive measure of a state's economy, and is comparably estimated for all states by the Bureau of Economic Analysis (BEA), U.S. Department of Commerce. State and national disaggregated personal income estimates used in this year's report extend through data for calendar year 1983, and were released by BEA in the fall of 1984. County-level personal income data used in the report extend through data for calendar 1982, and were released by BEA in the spring of 1984. All data used in the report are the most current annual estimates available; data for the more recent years are generally subject to revision in the future. A glossary of terms related to Personal Income is included at the end of this report.

The appearance of this publication is the product of the combined efforts of many people. Primary credits go to Professor Don M. Soule, who outlined the plan of work and then wrote the analysis. Carolyn S. Looff prepared the data tables for the analysis, using the Kentucky Economic Information System (KEIS), and assisted the editor throughout the preparation of the report; Roy A. Sigafus prepared the computer graphics. Special thanks are extended to the Small Business Development Center, College of Business and Economics, for use of their computer graphics equipment. Staff of the Center for Business and Economic Research who maintained the KEIS database during 1984 were Mark Lunn, Yee Ling Mui, Frances E. Ross, Carol M. Straus, and Elsie M. Youmans. All of these related activities have been undertaken with the support of the Center's director, H. Brinton Milward; Associate Dean for Graduate Studies and Research, Merl M. Hackbart; and Dean Richard W. Furst.

The Information Services Center, College of Business and Economics, directed by Janet S. Cabaniss, handled all production details for the report, including typesetting by James C. Wright, and layout, paste-up, and publication coordination by Pat Churney. Printing was done at the University of Kentucky Printing Department.

Margaret O'Neill Adams
Editor

CHARACTERISTICS AND CHANGES IN THE KENTUCKY ECONOMY, 1970-1983

by Don M. Soule*

This report describes and analyzes the Kentucky economy using the analytical method of comparing the Kentucky economy with the national economy. Choice of years to be compared and types of data to be used is heavily influenced by two major events: the occurrence of two national recessions in the early 1980s; and the absence, since about 1978, of the greater-than-national-average improvement that characterized the Kentucky economy during several previous decades.[1] In order to put these economic events in proper perspective, comparisons are made generally for the period 1970-83, although years before 1970 are included in some cases to give greater historical perspective. Because Kentucky and national economic data differ in magnitude, the data are in many cases converted to percentages of the 1970 amounts. Also, income data are used instead of employment data in comparisons of industrial sectors. The choice to use income data reflects the view that income better shows economic changes because income data are affected by differences in wage rates and number of hours worked per week—dimensions that are not shown by number of workers employed.

Analysis of the many dimensions of the Kentucky economy is organized into 13 parts to allow easy comparison and also to simplify the presentation of text, tables, and charts. Generous use is made of computer-produced plots and charts to highlight the more important aspects of the economic relationships and changes described in the text and tables. Readers are reminded that degrees of difference and change may appear to be exaggerated in the computer-produced charts insofar as some of the numerical scales do not extend to zero.

Two important and timely subjects chosen for more extended analysis are: characteristics and interrelationships among local economies (Section 8), and sources and changes in state and local government revenue (Sections 9 and 10). Except where otherwise noted, the primary source for all data is the Bureau of Economic Analysis of the U.S. Department of Commerce. The secondary source for all of the data analyzed in this report is the Kentucky Economic Information System (KEIS).

[1]For previous analyses of the Kentucky economy and especially the tendency for relative improvement to have peaked around 1978, see Don M. Soule, "The Changing Kentucky Economy: 1970 to 1980," in [Kentucky] *Council of Economic Advisors Annual Report—1982*, and Don M. Soule and Frances E. Ross, "A Descriptive Analysis of the Kentucky Economy, 1970-82," in [Kentucky] *Council of Economic Advisors Annual Report—1983*.

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1. Population Size, Density, and Migration

Both the Kentucky and national populations have continually grown over the period of 64 years (1920-83) shown in Table 1-A. The percentage growth for the period was about 54 percent for the state and about 121 percent for the nation. Of course, the inclusion of Hawaii and Alaska midway in the period accounts for some of the nation's growth. But even in later years, the different rates of population growth have caused Kentucky to represent a declining percentage of the nation's population, changing from 1.689 percent of the nation's population in 1960 to 1.587 percent in 1983. Much the same pattern is shown in Table 1-A for population density. Kentucky's population has become more dense, with population per square mile increasing by about 56 percent over the period 1920-83. But the nation's population density increased by about 121 percent during that period.

These comparisons of Kentucky and national populations are presented early to emphasize a type of comparison made repeatedly throughout this report. Economic and other changes in a particular state, when viewed alone, can often give a misleading impression if no account is taken of similar changes occurring in other states. What is most important in many cases is not that a state is growing but that its growth is similar to, or different from, growth occurring in other states and the nation. Based on common observation, it is obvious that Kentucky's population is growing in size and density. But a comparison of Kentucky and national data reveals that Ken-

TABLE 1-A

Population Size and Density, Kentucky and United States, 1920-1983

	Total Population			Population Density		
Year	Kentucky	United States	Kentucky as % of United States	Kentucky	United States	Kentucky as % of United States
	(Millions)		(Percent)	(Persons Per Square Mile)		(Percent)
1920	2.417	105.7	2.287	60.1	29.9	201
1930	2.615	122.8	2.129	65.2	34.7	188
1940	2.846	131.7	2.161	70.9	37.2	191
1950	2.945	151.0	1.950	73.9	42.6	173
1960	3.041	180.0	1.689	76.2	50.6	151
1970	3.221	204.0	1.579	81.2	57.4	141
1980	3.661	227.2	1.611	92.3	63.9	144
1981	3.670	229.5	1.599	92.5	64.8	143
1982	3.688	231.8	1.591	93.0	65.5	142
1983	3.714	234.0	1.587	93.6	66.1	141

Source: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1982-83*. Calculations by staff, using the Kentucky Economic Information System.

tucky is changing in these respects at less than the national rate. Throughout this report, emphasis is placed on relative changes and differences—that is, on how Kentucky differs from the nation.

Migration of population into and out of a state is influenced by many factors, but a very important reason for interstate migration is economic opportunity. When a state's out-migration exceeds its in-migration (negative net migration), and especially when these changes continue over several years, there is a strong suggestion that economic opportunities in that state are inferior relative to other states. Likewise, several years of positive net migration (in-migration in excess of out-migration) suggest superior economic opportunities relative to other states. A change in the degree and direction of net migration suggests relative change in economic opportunity.

Kentucky's net migration is shown in Table 1-B for the 32-year period 1952-83. These amounts are also plotted in Figure 1 to better illustrate the net migration changes. Although irregular changes occurred from year to year, the overall pattern is one of general improvement in Kentucky, relative to the nation, from 1952 to about 1976. The annual amounts of negative net migration generally got smaller between 1952 and 1968, although with some reversals, such as in 1961-63, 1965-66, and 1969-70. Positive net migration occurred each year in the period 1971-79, suggesting a continuation

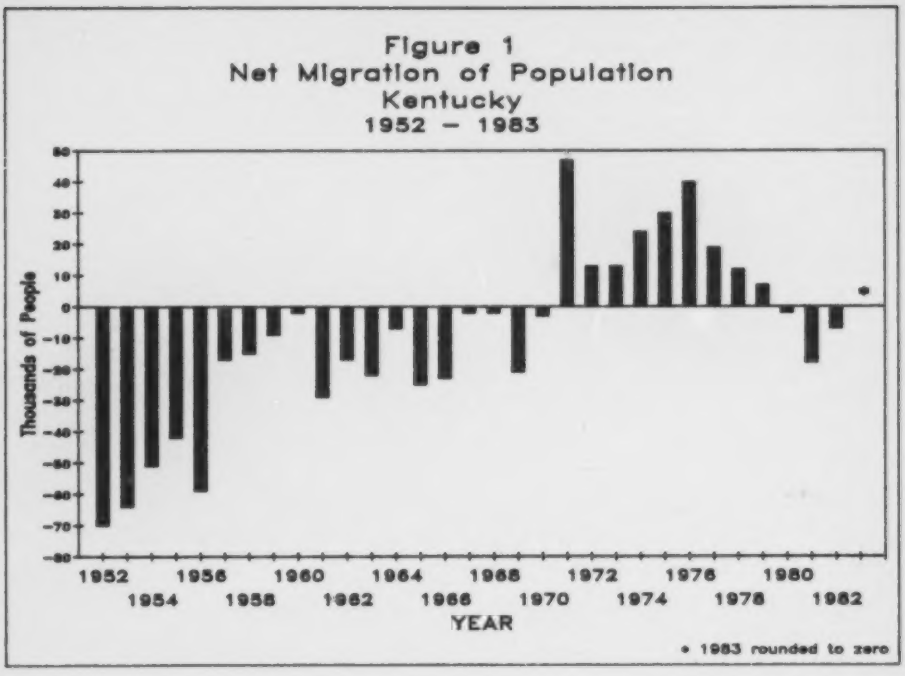
TABLE 1-B

Net Migration of Population, Kentucky, 1952-1983
(In Thousands of Persons)

Year	Annual Net Migration	Year	Annual Net Migration	Year	Annual Net Migration	Year	Annual Net Migration
1952	−70	1960	− 2	1968	− 2	1976	+40
1953	−64	1961	−29	1969	−21	1977	+19
1954	−51	1962	−17	1970	− 3	1978	+12
1955	−42	1963	−22	1971	+47	1979	+ 7
1956	−59	1964	− 7	1972	+13	1980	− 2
1957	−17	1965	−25	1973	+13	1981	−18
1958	−15	1966	−23	1974	+24	1982	− 7
1959	− 9	1967	− 2	1975	+30	1983	0

Source: Calculated from data stored in the Kentucky Economic Information System. Annual population estimates are made by the Bureau of the Census, U.S. Department of Commerce, and published in the P-25 *Current Population Series*. Data for 1960, 1970, and 1980 are April 1 estimates; data for all other years are July 1 estimates. Data on births and deaths originate from the Kentucky Cabinet for Human Resources; the July 1 estimates on births and deaths, used in the above calculations of net migration, are made by the Bureau of the Census.

Note: Annual net migration is the number of persons moving into Kentucky less the number of persons moving out of Kentucky; it represents that part of the difference between the population of one year and the next that is not accounted for by adding births and subtracting deaths. A negative amount indicates population loss. It should be borne in mind that the annual intercensal estimates of births and deaths are not revised, although the annual total population estimates are revised as a result of subsequent censuses and other information. The above calculations incorporate all revisions made to date. Another difficulty with annual net migration data is the use of April 1 estimates for censal years and July 1 estimates for all other years.



of Kentucky's relative improvement in economic opportunities. After 1976, the annual amounts of net in-migration grew smaller and became net out-migration, although the degree of net out-migration declined to zero in 1983. But while these migration changes mirror other economic indicators, it should be noted that irregular movements were common in the 32-year period shown and, therefore, that the unfavorable changes in the period since 1976 do not necessarily allow prediction of a permanent unfavorable trend.

2. Labor Force, Unemployment, and Earnings Levels

The Kentucky employment situation, as reflected in levels and distribution of earnings among industries, is described in detail later in this report. But Kentucky's economic health, especially as reflected in income from working, is also influenced by people who choose not to work (people not in the labor force), by people who wish to work but cannot find jobs (people unemployed), and by people who work in lower-wage industries. A state might be below the national average in per capita personal income because of below-average rates of labor force participation, above-average rates of unemployment, and/or below-average wage levels.

The civilian labor force participation rate is computed by expressing the civilian labor force (sum of persons employed and persons unemployed) as a percentage of the non-institutional civilian population age 16 and over. Examples of types of persons not in the civilian labor force are military personnel, housewives, college students, retired former workers, and the physically and mentally handicapped. Shown in Table 2-A are annual civilian labor force participation rates for Kentucky and the United States for the 14-year period 1970-83. Kentucky's rate was below the national rate in every

TABLE 2-A

Annual Rates of Civilian Labor Force Participation, Kentucky and United States, 1970-1983

Year	Kentucky	United States	Kentucky as % of United States
1970	55.0%	60.4%	91%
1971	55.4	60.2	92
1972	55.3	60.4	92
1973	58.3	60.8	96
1974	58.8	61.3	96
1975	57.6	61.2	94
1976	58.5	61.6	95
1977	60.1	62.2	97
1978	61.0	63.2	97
1979	60.3	63.7	95
1980	61.2	63.8	96
1981	60.7	63.9	95
1982	60.8	64.0	95
1983	60.8	64.0	95

Source: Kentucky rates are calculated within the Kentucky Economic Information System from data produced by the Kentucky Cabinet for Human Resources and the Urban Studies Center, University of Louisville. National data are from the U.S. Department of Labor, Bureau of Labor Statistics.

Note: The Labor Force Participation Rate is the number of employed and unemployed persons as a percentage of the noninstitutional civilian population age 16 and over.

year, causing the Kentucky amounts to be less than 100 percent of the national amounts, as shown in the last column of the table. Within the 14-year period, however, Kentucky improved relative to the nation in labor force participation rate from 1970 to about 1977-78, with a slight decline since 1979. The overall picture can be interpreted as one of general improvement in Kentucky because its labor force participation rate in the entire period 1973-83 was above previous Kentucky levels as suggested by the 1970-72 amounts. As is true with net in-migration, a high and increasing rate of labor force participation is a favorable economic indicator because it suggests that improved economic opportunities are encouraging people to enter the labor force.

The unemployment rate is computed by expressing the number of people unemployed (persons not employed but nevertheless looking for jobs) as a percentage of the civilian labor force (sum of persons employed and unemployed). Care should be taken in interpreting unemployment rates

TABLE 2-B

Annual Rates of Total Civilian Unemployment, Kentucky and United States, 1961-1983

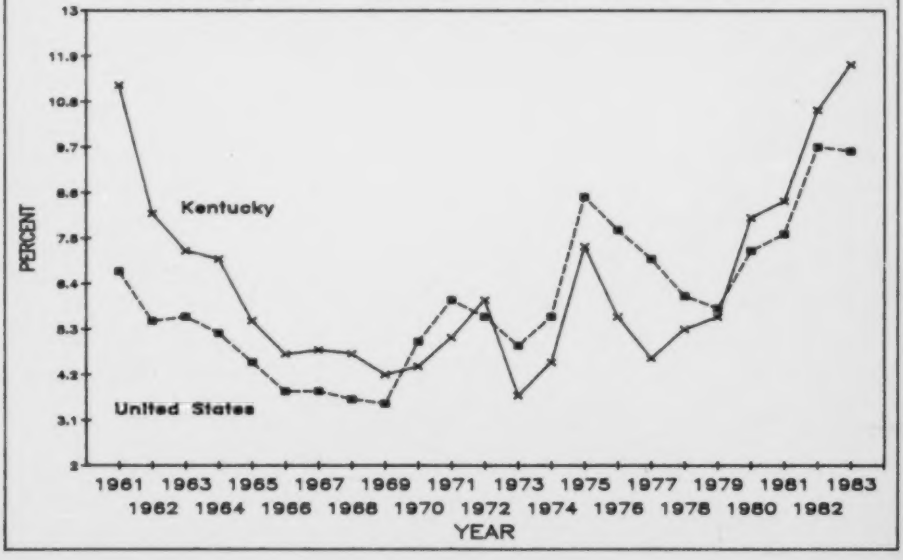
Year	Kentucky	United States	Percentage Point Difference KY-U.S.
1961	11.2%	6.7%	+4.5
1962	8.1	5.5	+2.6
1963	7.2	5.6	+1.6
1964	7.0	5.2	+1.8
1965	5.5	4.5	+1.0
1966	4.7	3.8	+0.9
1967	4.8	3.8	+1.0
1968	4.7	3.6	+1.1
1969	4.2	3.5	+0.7
1970	4.4	5.0	−0.6
1971	5.1	6.0	−0.9
1972	6.0	5.6	+0.4
1973	3.7	4.9	−1.2
1974	4.5	5.6	−1.1
1975	7.3	8.5	−1.2
1976	5.6	7.7	−2.1
1977	4.6	7.0	−2.4
1978	5.3	6.1	−0.8
1979	5.6	5.8	−0.2
1980	8.0	7.2	+0.8
1981	8.4	7.6	+0.8
1982	10.6	9.7	+0.9
1983	11.7	9.6	+2.1

Source: Kentucky Cabinet for Human Resources, and the U.S. Department of Labor, Bureau of Labor Statistics, through the Kentucky Economic Information System.

Note: The Unemployment Rate is the number of unemployed persons as a percentage of the civilian labor force.

because usual relationships are reversed. That is, a high or increasing unemployment rate suggests unfavorable or worsening economic conditions, whereas most economic indicators are interpreted as unfavorable when amounts are small or decreasing. Shown in Table 2-B are rates of total unemployment for Kentucky and the United States for the 23-year period 1961-83. The excess of the Kentucky rate over the national rate is also shown, with positive amounts indicating unfavorable conditions for Kentucky. Kentucky's rate was higher than the national rate generally in the periods 1961-69 and 1980-83 but was lower than the national rate in the period 1970-79 (except for 1972). Thus, Kentucky enjoyed a favorable position relative to the nation in unemployment rates only during the 1970s. But another interpretation of these statistics suggests a general improvement for Kentucky relative to the nation from 1961 to about 1977, as shown by successively smaller excesses of the Kentucky rate over the national rate, from 1961 to 1969, and then successively higher excesses of the national rate over the Kentucky rate from 1970 to 1977. But this relationship turned unfavorably for Kentucky after 1977, with Kentucky's unemployment rate changing from 2.4 percentage points below the national rate in 1977 to an excess of 2.1 percentage points over the national rate in 1983. The changing relationship between the Kentucky and the national rates is further illustrated by the plot in Figure 2-A. It is well to recognize, however, that in defining and measuring "unemployed," "employed," and "in the civilian labor force," several important problems are encountered and compromises are made,

Figure 2—A
Annual Rates of Total Civilian Unemployment
Kentucky and United States, 1961—1983



which allow reasonable disagreements in interpreting the results. Nevertheless, the picture of unfavorable recent economic conditions in Kentucky, as reflected in the unemployment statistics, is generally consistent with results using other economic data.

A third basic factor influencing income levels in Kentucky (in addition to civilian labor force participation and unemployment rates) concerns large differences among industries in average annual earnings of workers. For example, as shown in Table 2-C, average earnings of Kentucky miners in 1983 were 2.4 times the average earnings of workers in the trade (wholesale and retail) industry. Much attention has been paid in recent years to the large employment changes that have been occurring in the nation, as some industries and geographical areas experience large increases in jobs while others suffer losses. These changes, as well as the degree of success of private and governmental programs to influence the location of businesses (such as encouraging a business to locate in Kentucky instead of another state), cannot be interpreted merely from statistics on the number of jobs. Also important are the average earnings levels in the industries involved. For example, a new mining job counts more heavily than a job in the trade industry, in terms of workers' earnings. Also, a shift of employment from one industry to another, with an unchanged level of total employment, would cause Kentucky's per capita personal income to rise or fall depending upon whether the employment shift was toward or away from high-wage industries.

Later sections in this report will show changes in aggregate income of workers in various industries. To help the reader in interpreting the importance of the inter-industry employment shifts that are reflected somewhat in the aggregate income statistics reported in later sections, the average earnings levels by industries are shown in Table 2-C for Kentucky and the nation for 1970, 1980, and 1983. The general pattern is similar for all three years. Kentucky average earnings are below the national averages in all cases (except for mining in 1980, and with Kentucky generally improved relative to the nation in 1980 compared with the other years); mining is Kentucky's highest wage industry; and earnings are generally above the all-Kentucky average in mining, construction, manufacturing, and transportation but below the all-Kentucky average in trade, services, and government, with finance generally at about the average level. The 1983 average earnings for Kentucky, by eight industries, are plotted in Figure 2-B.

TABLE 2-C

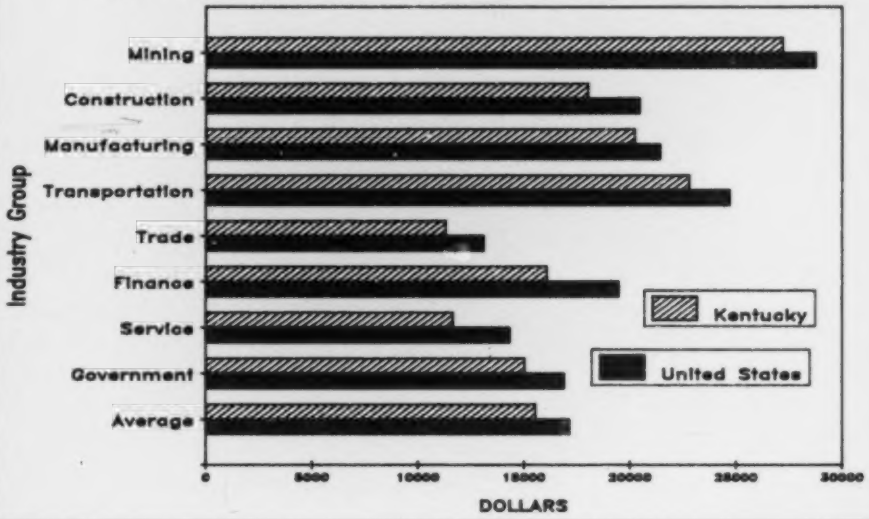
Average Annual Earnings of Nonagricultural Wage and Salary Employees
Kentucky and United States, 1970, 1980, 1983

Industry	1970			1980			1983		
	Kentucky	United States	Kentucky as % of United States	Kentucky	United States	Kentucky as % of United States	Kentucky	United States	Kentucky as % of United States
Mining	$8552	$9249	92.5%	$23,164	$22,987	100.8%	$27,249	$28,791	94.6%
Construction	8139	9321	87.3	16,334	17,491	93.4	18,067	20,499	88.1
Manufacturing	7210	8149	88.5	16,281	17,421	93.5	20,267	21,461	94.4
Transportation	8108	8957	90.5	19,156	20,131	95.2	22,838	24,744	92.3
Trade	5073	5885	86.2	9,829	11,177	87.9	11,357	13,150	86.4
Finance, Insurance and Real Estate	6430	7389	87.0	12,804	14,881	86.0	16,131	19,502	82.7
Services	4021	5221	77.0	9,177	11,305	81.2	11,690	14,377	81.3
Government	5845	6801	85.9	12,012	13,542	88.7	15,074	16,923	89.1
Total Nonagricultural	6079	6963	87.3	13,054	14,098	92.6	15,591	17,199	90.7

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: Average Annual Earnings of Wage and Salary Employees is total wage and salary disbursements divided by total number of wage and salary jobs. These data are workplace-based and include full and part-time jobs. Earnings are in current dollars.

Figure 2–B
Average Annual Income Per Worker
Kentucky and the United States, 1983
Eight Industry Groups and Non–Agriculture Average



3. Levels and Sources of Personal Income

If total personal income of all persons in a particular year is divided by the number of persons for that year in a particular geographical or political unit, the resulting amount is "personal income per person on the average." This amount is generally referred to as "per capita personal income" and is, by general agreement, the best single indicator of economic well-being for state and local government areas. Levels of per capita personal income differ widely among the 50 states, with the lowest average amount found in the group of 12 southeastern states. Kentucky is a southeastern state and is below the group average in per capita personal income. Because these relationships have existed for many years, analysis of annual amounts most often concerns changes in the usual relationships.

As shown in Table 3-A, Kentucky's per capita personal income improved from being only 54 percent of the national average in 1940, to 83 percent in 1977, but fell to 80.4 percent of the national average in 1983. While 1980 and 1983 were unfavorable years for Kentucky, compared with other years in the period 1974 to 1982, and while the period 1974 and later has been

TABLE 3-A
Per Capita Personal Income, Kentucky and the Southeast Region Relative to the United States, 1940-1983

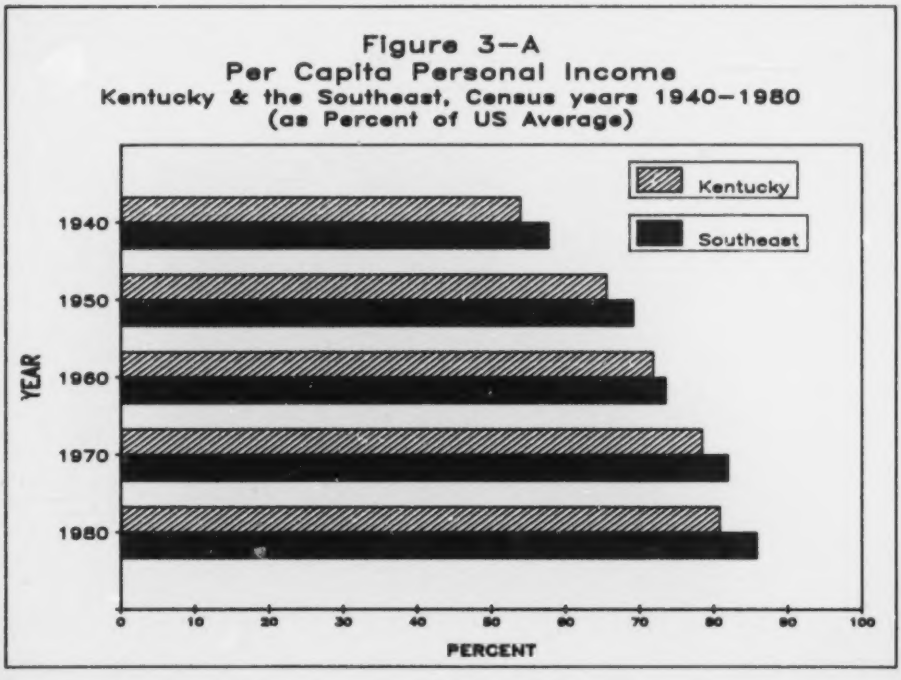
Year	Per Capita Personal Income as % of National Average		Kentucky as % of Southeast
	Kentucky	Southeast	
1940	54.0	57.7	93.5
1950	65.6	69.2	94.8
1960	71.9	73.6	97.6
1970	78.5	82.0	95.7
1971	78.8	83.1	94.8
1972	79.4	84.3	94.2
1973	79.8	84.9	94.0
1974	82.9	85.5	96.9
1975	82.0	84.9	96.5
1976	82.7	85.3	96.9
1977	83.0	85.3	97.3
1978	82.1	85.7	95.7
1979	82.3	85.5	96.3
1980	80.9	85.8	94.2
1981	81.6	86.4	94.5
1982	82.1	86.9	94.5
1983	80.4	87.4	92.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: States of the Southeast Region are: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

a relative plateau and slight decline, the long run trend has been for Kentucky to improve relative to the national average in per capita personal income. Compared with the group of 12 southeastern states, however, Kentucky is below the group average in all years shown and also has tended to fall behind the group average in the period 1977 to 1983. These relationships are plotted in Figures 3-A and 3-B to show not only the long run trends but also the annual changes since 1970.

Growth in per capita personal income is shown in Table 3-B for Kentucky, the United States, and the group of 12 southeastern states. Amounts are shown after two statistical adjustments: first, the effects of inflation are removed by using income data measured in dollars of constant purchasing power over the years; second, all three series are converted to index numbers with 1970 equal to 100 percent. Comparison based on these adjusted amounts gives a slightly different picture from that in Table 3-A. For example, Kentucky's growth was greater than national growth (31.4 percent compared to 28.3 percent) between the two years 1970 and 1983. Also because the values are inflation-adjusted, Table 3-B shows the degrees of overall improvement in purchasing power, on the average. Kentucky's constant-purchasing-power amounts of per capita personal income increased about 50 percent from 1960 to 1970 (100 less 66.2 is 33.8, which is 51.1 percent of 66.2) and by about 31 percent from 1970 to 1983, for a total increase of about 100 percent since 1960. This suggests that Kentuckians, on the average, had twice the purchasing power in 1983 as they had in 1960.



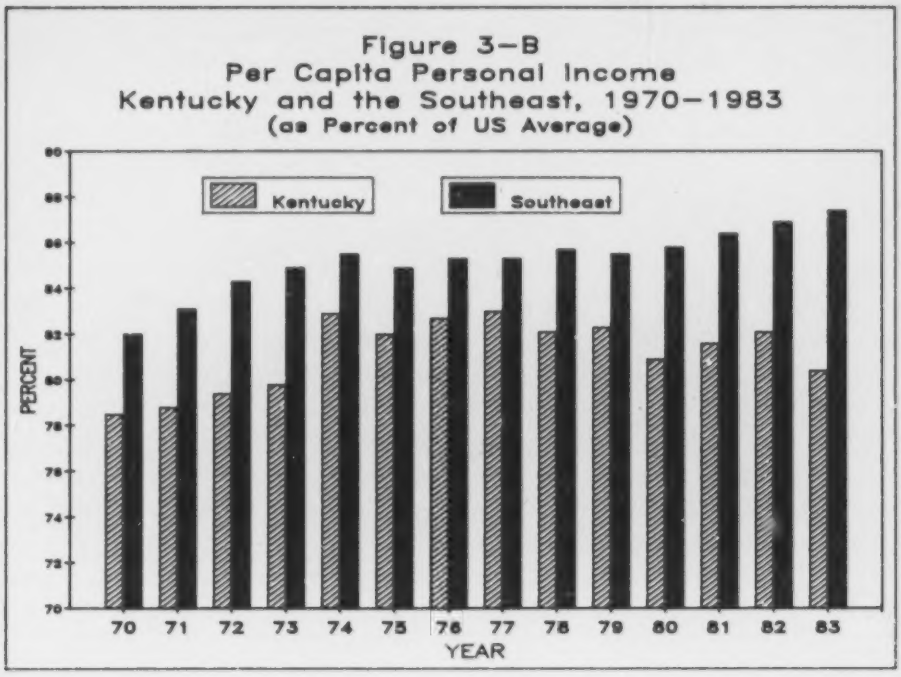


TABLE 3-B

Growth in Per Capita Personal Income, Kentucky, the Southeast Region, and the United States, 1940-1983, in Dollars of Constant Purchasing Power (Index Numbers: 1970 = 100)

Year	Kentucky	Southeast	United States
1940	30.7	31.5	44.7
1950	51.3	51.9	61.5
1960	66.2	64.9	72.3
1970	100.0	100.0	100.0
1971	101.6	102.6	101.2
1972	107.1	108.9	105.9
1973	113.0	115.0	111.1
1974	115.9	114.4	109.7
1975	114.2	113.2	109.3
1976	119.4	117.9	113.4
1977	124.3	122.3	117.6
1978	127.8	127.8	122.3
1979	131.0	130.2	124.8
1980	128.2	130.2	124.4
1981	132.1	133.9	127.1
1982	132.3	134.0	126.5
1983	131.4	136.8	128.3

Source and Note: Same as Table 3-A.

The sources from which personal income is received differ in relative importance between Kentucky and the nation and also change over the years. One method for analyzing these is to express each source as a percentage of total personal income, for Kentucky and the nation and for each of several years (Table 3-C). While these data are useful in describing differences and changes over the years, the amounts sometimes are difficult to interpret because a relative increase in one source of income (such as transfer payments) must necessarily be accompanied by a relative decrease, or slower increase in one or more other income sources (such as investment income) because the amounts for any year must sum to 100 percent. Therefore, relative differences in degree of growth among income sources are also shown as percentages of the 1970 amounts (Table 3-D). The two tables give generally similar pictures but have different emphases. For example, Kentucky's rate of growth in investment income has been greater than the national average growth since 1970. This is clear in the table based on percentages of 1970 values (Table 3-D) but is not obvious in the table based on percentages of totals (Table 3-C). Note also that the data in Table 3-D were not

TABLE 3-C

Relative Importance of Sources of Personal Income, Kentucky and United States, 1958-1983

	Sources as Percentages of Total Personal Income							
	Labor and Proprietors' Income							
	Farm		Nonfarm		Transfer Payments		Investment Income	
Year	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States
1958	8.2%	4.3%	71.8%	78.0%	9.1%	7.2%	10.5%	12.4%
1961	7.9	3.6	69.4	77.7	11.5	7.9	11.1	13.2
1964	5.6	2.8	73.3	78.0	9.5	7.6	12.0	14.1
1967	5.4	2.6	74.4	78.2	10.3	8.4	11.3	14.1
1970	4.3	2.3	74.5	77.4	11.4	10.0	11.1	13.9
1971	4.1	2.2	74.4	76.8	12.4	11.0	11.2	13.7
1972	4.6	2.4	74.2	76.8	12.4	11.1	10.9	13.3
1973	4.9	3.5	74.1	75.7	13.3	11.3	10.9	13.5
1974	5.0	2.7	72.6	75.0	13.9	12.2	11.9	14.2
1975	3.5	2.4	72.0	73.4	16.0	14.2	11.8	14.0
1976	3.8	1.9	72.3	74.2	15.6	14.0	11.8	13.9
1977	3.8	1.7	72.6	74.6	14.9	13.5	12.0	14.2
1978	3.4	1.9	73.7	74.6	14.3	13.0	12.0	14.6
1979	3.5	2.0	73.0	74.0	14.6	12.9	12.5	15.3
1980	2.8	1.4	70.6	72.5	16.2	13.8	13.8	16.4
1981	3.8	1.6	68.1	70.7	16.2	13.9	15.4	18.1
1982	3.4	1.2	66.7	70.0	16.6	14.6	16.7	18.8
1983	1.6	0.9	67.7	70.2	17.4	14.8	16.8	18.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

Note: Investment Income includes personal interest income, dividends, and rental income. The above parts may not total 100 percent for the United States in some years, because of the residence adjustment. The adjustment for residence is the net difference between earnings of persons residing in the U.S. but working abroad, and earnings of persons working in the United States but residing abroad.

TABLE 3-D

Annual Changes in Income Sources, Kentucky and United States, 1958-1983
(Index Numbers: 1970 = 100)

	Labor and Proprietors' Income							
	Farm		Nonfarm		Transfer Payments		Investment Income	
Year	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States
1958	84.6	85.3	42.9	45.0	35.4	32.4	41.7	40.1
1961	94.2	81.4	47.7	51.7	51.8	40.9	51.0	49.2
1964	76.9	77.1	58.8	62.1	49.5	46.7	64.4	62.9
1967	96.4	87.9	76.5	78.4	69.0	65.6	77.8	79.2
1970	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971	103.5	104.0	108.0	106.4	117.6	117.8	108.6	105.7
1972	128.9	124.5	119.2	116.7	130.4	130.6	117.4	113.2
1973	151.6	206.4	133.9	128.8	156.8	149.1	131.3	128.4
1974	179.1	174.9	150.2	140.2	187.4	176.2	164.1	148.2
1975	135.0	166.9	160.4	148.6	232.9	222.5	176.6	158.2
1976	162.4	141.8	180.1	165.3	253.9	242.4	196.5	172.9
1977	183.9	145.4	201.8	184.0	270.1	259.4	223.5	195.0
1978	182.7	185.5	227.6	206.9	287.8	279.3	248.8	225.7
1979	209.4	214.0	254.1	231.1	331.6	312.2	292.2	267.1
1980	182.6	162.1	266.5	251.5	398.2	371.3	348.5	318.2
1981	279.2	214.0	289.0	274.9	448.0	420.8	437.5	393.8
1982	262.1	177.5	301.6	288.5	491.4	469.2	505.8	435.2
1983	132.7	142.0	317.2	308.4	531.5	505.3	524.8	453.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

Note: Investment Income includes personal income interest, dividends, and rental income.

adjusted to remove the effects of inflation, meaning that the recent declines shown for the farm sectors were despite the exaggerating effects of inflation.

Relative importance of four income sources (Table 3-C) for Kentucky and the nation for the period 1958-83, reveals Kentucky as having above-national-average contributions from the farm sector. And while the farm sector has declined in relative importance over the years for both Kentucky and the nation, the Kentucky farm sector, as a source of personal income, is still above the national average. Nonfarm labor and proprietors' income has also declined in relative importance over the years shown for both Kentucky and the nation. Offsetting the declining importance of both farm and nonfarm labor and proprietors' income in total personal income, have been increases in the relative importance of the two other income sources—transfer payments and investment income (dividends, interest, and rent).

Growth in the four income sources is shown in Table 3-D, with data expressed as index numbers based on 1970 equal to 100 percent. Inflation was an important reason why all of the sources grew by large amounts over the years shown. Because of Kentucky's greater-than-national growth rate in total personal income between 1970 and 1983, it is not surprising that Kentucky had above-average growth for all three of the nonfarm income sources between 1970 and 1983. But deterioration of the income situation in the

farm sector, for both Kentucky and the nation, is clearly shown. Between 1981 and 1983, farm income of laborers and proprietors fell from 214 percent to 142 percent of the 1970 amount, for the nation, and from 279 percent to 133 percent of the 1970 amount for Kentucky. (For a further discussion of farm income, see Section 12 of this report.)

4. Wage and Salary Income in Eight Industry Groups

Earnings of wage and salary workers in nonfarm employment are reported in sufficient detail to allow comparisons of eight major industry groups. Two types of comparisons are presented in this report: each industry group is shown as a percentage of the total for selected years, and growth of each industry group is shown over the years. Both comparisons are of Kentucky and the United States. The percentage-of-total data are useful in interpreting the industry growth data because, for example, a small growth rate in an industry group with a large number of workers with above-average earnings, such as manufacturing, can have as much effect on total personal income and the economic well-being of Kentucky as a high growth rate in an industry group such as finance which has considerably fewer workers and a lower average earnings level (see Table 2-C).

Table 4-A shows nonagricultural wage and salary income of the eight major industry groups as percentages of the totals, for Kentucky and the nation for the years 1960, 1970, and 1980-83. In Kentucky, manufacturing is the largest source of this income, followed by government and then by trade and services. Much smaller sources are the transportation, finance, construction, and mining industries. Over the years shown, manufacturing, transportation, and construction have declined in relative importance; trade and government have remained about the same; and some increases have occurred in mining, finance, and services. Much the same distributions and changes occurred in the nation, but the relative decline in manufacturing was larger nationally than in Kentucky, and the importance of mining is much less for the nation than for Kentucky. It is interesting to note that Kentucky suffered reduced relative importance, from 1982 to 1983, in three higher-wage industries (mining, construction, and transportation) and had only a slight relative increase in importance of manufacturing. Shifts from higher- to lower-wage industries tend to reduce a state's income level relative to the national level insofar as these inter-industry shifts occur to a greater degree in that state than in the nation.

Growth in earnings of nonagricultural wage and salary workers is shown in Table 4-B for the eight industry groups and the total, for Kentucky and the United States, for the 14-year period 1970-83, with all amounts shown as percentages of the 1970 amounts. Comparing 1970 and 1983, it is interesting to note that Kentucky and the nation had nearly identical percentage increases in total earnings, in mining, in trade, and also in government, with the 1983 Kentucky indexed values exceeding the national values by 1, 2, 4, and 3 percentage points respectively. In manufacturing, the Ken-

TABLE 4-A

Nonagricultural Wage and Salary Income: Relative Importance of Eight Industry Groups, Kentucky and United States, Selected Years, 1960-1983

(Industry Income as Percent of Total Nonagricultural Wage and Salary Income)

	1960		1970		1980		1981		1982		1983	
Nonagricultural Income	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States
Mining	5.2%	1.5%	3.9%	1.1%	7.3%	1.8%	7.5%	2.0%	7.5%	2.0%	6.0%	1.7%
Construction	5.7	5.9	6.7	6.2	5.7	5.6	5.2	5.4	5.0	5.1	4.4	4.9
Manufacturing	28.8	33.7	29.1	29.4	27.1	26.4	27.1	26.1	25.3	24.7	25.6	24.2
Transportation	9.8	8.5	7.8	7.5	8.0	7.7	7.8	7.7	7.7	7.7	7.5	7.5
Trade	16.0	17.1	15.5	16.7	15.4	17.0	15.3	16.8	15.5	16.8	15.7	16.8
Finance	3.4	4.7	3.7	5.1	4.1	5.9	4.2	6.0	4.4	6.3	4.6	6.7
Services	10.1	11.0	10.8	13.2	12.4	16.3	12.9	16.9	13.7	17.8	14.5	18.5
Government	20.7	17.4	22.4	20.5	19.7	18.9	19.6	18.8	20.5	19.2	21.1	19.3

Source: U.S Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: Amounts do not sum to 100 percent because of rounding and also because Agricultural Services, Fisheries, Forestries and Other, an extremely small nonagricultural industrial group, is not included.

TABLE 4-B

Nonagricultural Wage and Salary Income Growth, Eight Industry Groups, Kentucky and United States, 1970-1983
(Index Numbers: 1970 = 100)

Year	Total	Mining	Construction	Manufacturing	Transportation	Trade	Finance	Services	Government
				Kentucky					
1970	100	100	100	100	100	100	100	100	100
1971	108	113	110	106	109	107	109	109	108
1972	118	129	120	121	119	115	117	118	116
1973	133	146	131	139	133	129	129	133	128
1974	148	207	131	152	147	143	146	148	140
1975	157	288	131	147	151	161	157	163	153
1976	177	309	149	170	173	179	177	184	167
1977	197	361	167	195	196	196	199	205	178
1978	223	403	215	217	224	227	227	235	194
1979	251	472	240	241	254	251	260	270	215
1980	265	501	224	247	269	264	296	305	232
1981	287	559	220	267	288	284	327	344	252
1982	296	573	220	258	291	297	350	378	272
1983	306	474	200	269	294	310	382	413	290
				United States					
1970	100	100	100	100	100	100	100	100	100
1971	106	104	108	101	107	107	109	108	109
1972	116	114	117	111	118	116	120	121	119
1973	129	126	130	124	131	128	132	134	130
1974	140	152	139	134	141	142	144	150	141
1975	148	187	135	133	147	151	154	165	154
1976	163	210	146	150	164	167	170	184	166
1977	181	241	161	168	182	184	189	204	179
1978	203	282	189	189	207	208	217	234	194
1979	228	337	217	211	234	232	248	269	209
1980	249	409	228	224	256	253	284	308	231
1981	275	511	240	244	281	276	320	351	252
1982	288	535	238	242	295	289	354	389	271
1983	305	472	242	250	305	306	397	427	287

Source: Same as Table 4-A.

Note: The nonagricultural industrial group, Agricultural Services, Fisheries, Forestries and Other, is included in the column showing total nonagricultural wage and salary income growth, but is not shown separately.

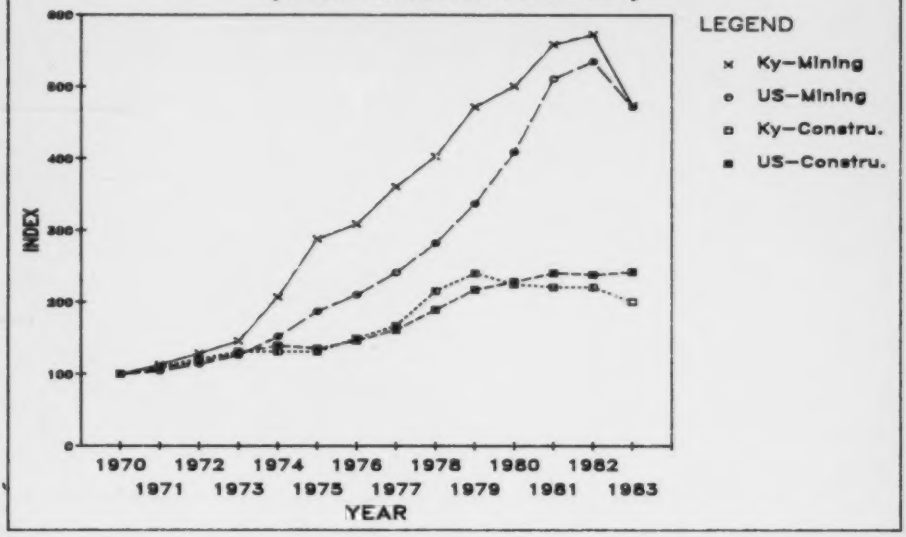
tucky 1983 indexed value was 19 points above the national value. In three of the remaining four industries, the 1983 Kentucky indexed values were moderately below the national values, being below by 11 percentage points in transportation, 15 points in finance, and 14 points in services. Only in construction was there a large difference, with Kentucky increasing to an indexed value of 200 in 1983 while the national value increased to 242.

Many important differences between Kentucky and the nation are shown for the years before 1983. For example, the growth in mining was greater for Kentucky in the earlier years shown, while the nation had greater growth in mining in the later years. In 1978, the mining index number for Kentucky was 403 while for the nation the index number was only 282; but by 1983 the Kentucky and national index numbers were nearly identical. The construction industry in Kentucky was similar to construction nationally in rate of growth until about 1977, after which Kentucky's rate of growth was generally lower and, since 1979, was negative. Kentucky's peak year for construction was 1979 (index number of 240) whereas the national indexed values continued to increase but reached a pleateau around 240 in 1981-83.

Kentucky's performance in manufacturing has generally been favorable to that of the nation, even in the 1980s (although it fell in 1982), with the Kentucky index values being above the national values throughout the 1970-83 period. This was caused probably by the long run national trend for manufacturing to become relatively less important and to be declining in importance at a greater rate nationally than in Kentucky. Also note that the high rate of growth of services in Kentucky is generally matched by similar growth nationally.

Selected for further illustration in Figure 4 are the indexed values for the construction and mining industries in Kentucky and the nation, 1970-83. Of interest are the different rates of growth over the entire period as well as differences in the years when growth occurred.

Figure 4
Wage and Salary Income Growth
Ky vs US in Construction and Mining
(Index numbers: 1970=100)



5. Growth and Change in Durable and Nondurable Manufacturing

As previously shown in Table 4-A, manufacturing is the largest of the eight major industry groups but is declining in relative importance, for both Kentucky and the United States, contributing approximately 25 percent of total nonagricultural wage and salary income in 1983 for both Kentucky and the nation. Also of interest are changes in the relative importance of the durable and nondurable goods sectors within total manufacturing. Table 5-A compares Kentucky and the United States according to the relative importance of durable and nondurable manufacturing for selected years 1951 to 1977 and annually for 1980-83.

Kentucky derived only 49.4 percent of its manufacturing income from durables in 1951 while the nation derived 59.1 percent, a difference of 9.7 percentage points. By 1974 this difference was only 2.3 points, with Kentucky at 61.1 percent and the nation at 63.4 percent. Since then, Kentucky has lagged behind the nation in growth of durable manufacturing to the extent that by 1983, the difference was 5.1 points, with Kentucky deriving 57.1 percent of its manufacturing income from durables while the nation derived 62.2 percent. Over the entire period shown, durable manufacturing became a more important part of total manufacturing, for both Kentucky and the nation, with Kentucky gaining on the nation in the 1970s, but losing some of its gain in the 1980s.

Because the data in Table 5-A show percentages of totals, and because growth over the years sometimes is not clearly revealed by such data, an additional comparison is presented using amounts expressed as percentages

TABLE 5-A

Manufacturing Wage and Salary Income: Relative Importance of Durables and Nondurables, Kentucky and United States, 1951-1983

Year	Durable Manufacturing		Nondurable Manufacturing	
	Kentucky	United States	Kentucky	United States
	(Percent of Total Manufacturing)		(Percent of Total Manufacturing)	
1951	49.4%	59.1%	50.6%	40.9%
1958	51.8	59.8	48.2	40.2
1961	52.6	59.9	47.4	40.1
1964	55.2	61.5	44.8	38.5
1967	56.4	63.1	43.6	36.9
1971	57.7	61.2	42.3	38.8
1974	61.1	63.4	38.9	36.6
1977	60.6	63.3	39.4	36.7
1980	59.8	64.2	40.2	35.8
1981	59.5	64.3	40.5	35.7
1982	56.9	62.8	43.1	37.2
1983	57.1	62.2	42.9	37.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

of a base year. Table 5-B compares the growth of wage and salary income in manufacturing, for Kentucky and the United States for the 14-year period 1970-83, with separate series for durables, nondurables, and total manufacturing. All amounts are expressed as index numbers with the 1970 amounts equal to 100 percent. In total manufacturing income, Kentucky grew at a greater rate than did the nation over the period, with the 1983 index number reaching 269 for Kentucky and 250 for the nation. During the period, however, the excess of the Kentucky index numbers over those for the nation was largest in 1979 (30 percentage points), falling to 16 and 19 points in 1982 and 1983, respectively.

Kentucky's greater-than-national growth in total manufacturing occurred in both durable and nondurable goods manufacturing. The percentage growth between 1970 and 1983 was essentially the same for all three series shown in Table 5-B. The Kentucky index numbers in 1983 were approximately 270 in all three series, and the nation's index numbers were approximately 250 in all three series. Also evident in the durable and nondurable manufacturing series is the relative peaking of Kentucky growth in the late 1970s. The percentage-point excess of the Kentucky over the national index numbers, which was largest at 30 percentage points in 1979 for total manufacturing, was largest at 37 points in 1979 for durables and at 25 points in 1981 and 1982 for nondurables. Over most of the period 1951-83, Kentucky's growth in durable manufacturing income exceeded its growth in nondurables, but in the 1980s growth has lagged for durables while continuing for nondurables. These differences in performance between Kentucky durables and nondurables are illustrated by plots in Figure 5.

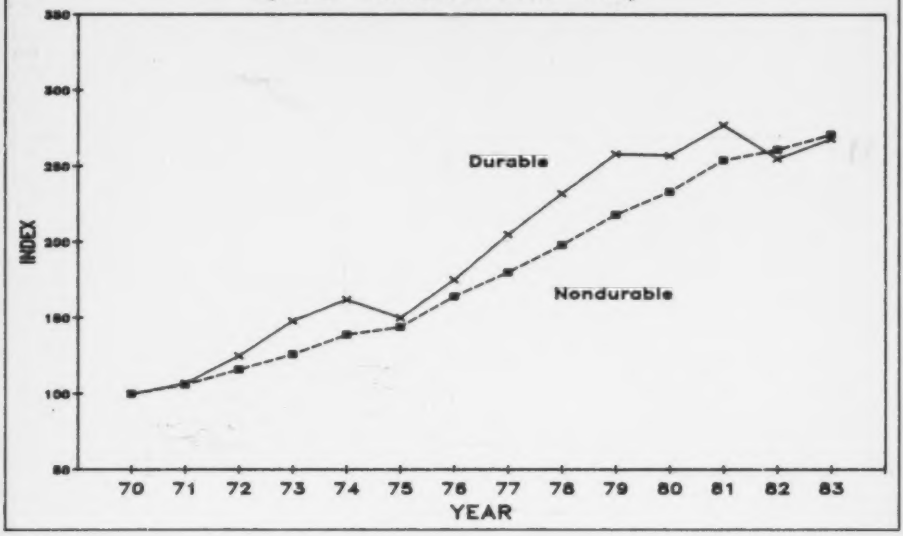
TABLE 5-B

Growth in Manufacturing Wage and Salary Income, Kentucky and the United States, 1970-1983 (Index Numbers: 1970 = 100)

Year	Total Manufacturing		Durable Manufacturing		Nondurable Manufacturing	
	Kentucky	United States	Kentucky	United States	Kentucky	United States
1970	100	100	100	100	100	100
1971	106	101	107	100	106	103
1972	121	111	125	111	116	111
1973	139	124	148	127	126	120
1974	152	134	162	137	139	128
1975	147	133	150	135	144	132
1976	170	150	175	151	164	148
1977	195	168	205	172	180	162
1978	217	189	232	196	198	178
1979	241	211	258	221	218	195
1980	247	224	257	233	233	211
1981	267	244	277	253	254	229
1982	258	242	255	246	261	236
1983	269	250	268	251	271	248

Source: U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

Figure 5
Wage & Salary Income from Manufacturing
Durable and Nondurable Industries
(Index numbers: 1970=100)



6. Durable Manufacturing Wage and Salary Income

Table 6-A shows the durable manufacturing sectors of the Kentucky and national economies in detail for ten subgroups for 1960, 1970, and 1980-83. Amounts are shown as percentages of total durable manufacturing wage and salary income. The "other" subgroup is much larger for the nation than for Kentucky because the nine groups listed were selected for their importance in Kentucky, because degrees of importance of particular subgroups differ between Kentucky and the nation, and because a selection based on national importance would have included a different set of subgroups. In 1983, the two largest durable manufacturing subgroups in Kentucky were electrical machinery and all other machinery. Also important in Kentucky was the manufacture of primary metals, motor vehicles, and fabricated metals. In 1983, these five groups summed to 84 percent of total durable manufacturing in Kentucky but to only 67.5 percent in the nation.

The relative importance of these groups changed over the period 1960-83, with Kentucky declining relative to the nation in lumber, furniture, fabricated metals, electrical machinery, and slightly, stone. But Kentucky gained on the nation between 1960 and 1983 in the relative importance of primary metals, other machinery, motor vehicles, and instruments. These differences and changes between 1960 and 1983 are illustrated in Figures 6-A and 6-B.

As in previous sections of this report, growth in these data series is highlighted by expressing annual amounts as index numbers wherein the base year amounts are 100 percent and amounts for all other years are larger or smaller than 100. Index number series of this type are presented in Table 6-B for the nine subgroups in total durable manufacturing wage and salary income for Kentucky and the United States for the 14-year period 1970-83, with 1970 as the base year and equal to 100 percent. Growth either ceased or substantially slowed in many of the Kentucky series in the late 1970s and early 1980s. Some recovery by 1983 occurred in some but not all subgroups. Large improvements are shown for 1983 in furniture and motor vehicles, and growth in the instruments subgroup has been impressive since 1975. Comparing Kentucky with the nation, Kentucky's growth was less than national growth in lumber, furniture, fabricated metals, electrical machinery, and instruments, over the 14-year period. But Kentucky exceeded the nation's growth in primary metals, motor vehicles, stone and slightly, other machinery. To highlight these differences, Figure 6-C plots the motor vehicle and primary metals subgroups for Kentucky and the United States.

TABLE 6-A

Wage and Salary Income in Durable Manufacturing: Relative Importance of Ten Subgroups, Kentucky and United States, Selected Years, 1960-1983

(Amounts as Percents of Total Durable Manufacturing)

	1960		1970		1980		1981		1982		1983	
Durable Manufacturing	**Kentucky**	**United States**	**Kentucky**	**United States**	**Kentucky**	**United States**	**Kentucky**	**United States**	**Kentucky**	**United States**	**Kentucky**	**United States**
Lumber	6.6%	4.4%	4.3%	3.8%	3.7%	4.2%	3.7%	4.0%	3.5%	3.9%	3.6%	4.4%
Furniture	4.9	3.1	3.6	3.0	2.3	2.6	2.1	2.5	2.2	2.6	2.6	2.8
Primary Metals	14.0	14.3	12.4	12.3	15.7	11.3	16.0	11.3	15.6	9.7	15.4	8.7
Fabricated Metals	16.1	11.9	13.0	11.8	10.4	12.4	10.3	12.3	10.4	12.0	9.7	11.8
Machinery (Other)	18.0	16.4	22.8	18.8	26.9	21.3	27.2	21.6	27.1	21.3	24.9	19.7
Electrical Machinery	25.4	15.2	26.5	16.6	22.1	16.1	21.8	16.2	21.4	17.5	22.6	18.5
Motor Vehicles	5.6	8.7	7.7	8.3	8.8	8.3	9.6	8.3	10.1	7.9	11.3	8.8
Stone	6.3	5.9	5.0	5.4	5.5	5.1	4.9	4.9	5.1	4.9	5.1	5.0
Instruments	0.9	3.8	1.7	4.2	1.7	5.6	1.8	5.8	1.9	6.5	2.0	6.6
Other	2.4	16.3	3.2	15.8	2.9	13.1	2.7	13.1	2.7	13.8	2.7	13.8

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: Because of rounding, amounts do not sum to 100 percent in all cases.

Figure 6–A
Wage & Salary Income in Durable Manufacturing
Kentucky & the United States, 1960
(Amounts as Percents of Total Durable Manufacturing)

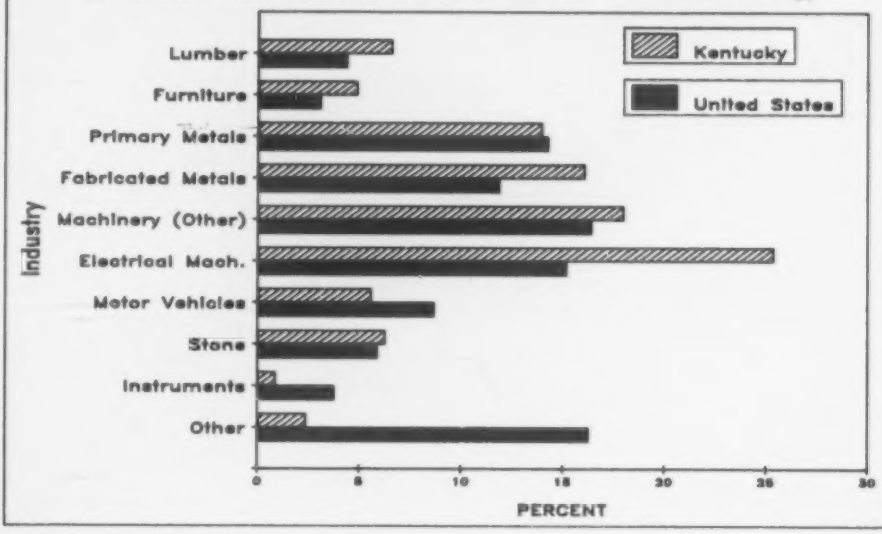


Figure 6–B
Wage & Salary Income in Durable Manufacturing
Kentucky & the United States, 1983
(Amounts as Percents of Total Durable Manufacturing)

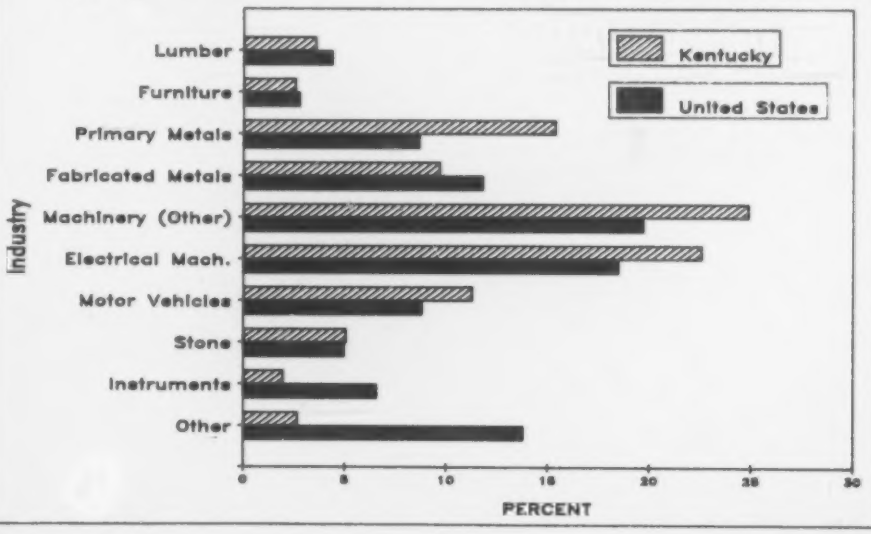


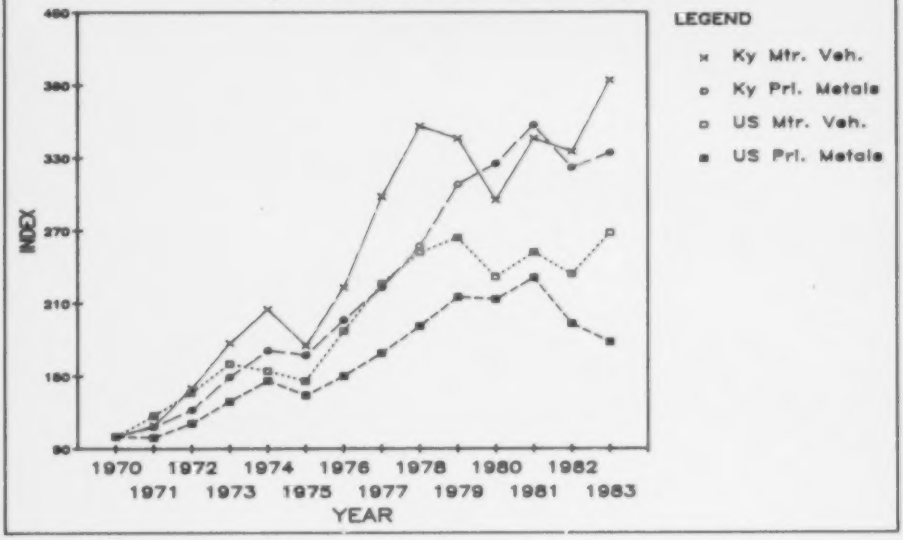
TABLE 6-B

Wage and Salary Income Growth, Nine Durable Manufacturing Subgroups, Kentucky and United States, 1970-1983
(Index Numbers: 1970 = 100)

Year	Lumber	Furniture	Primary Metals	Fabricated Metals	Machinery (Other)	Electrical Machinery	Motor Vehicles	Stone	Instruments
				Durable Manufacturing Industries					
				Kentucky					
1970	100	100	100	100	100	100	100	100	100
1971	108	109	108	100	107	107	109	106	118
1972	117	123	122	116	122	128	140	119	145
1973	138	140	149	138	148	146	177	138	167
1974	146	135	171	148	172	149	205	149	213
1975	141	114	167	141	178	122	175	162	123
1976	170	138	196	161	195	149	223	179	177
1977	180	159	223	192	216	180	298	215	193
1978	201	168	257	211	247	199	356	243	204
1979	230	173	308	222	283	221	346	286	261
1980	221	168	325	206	303	215	295	285	251
1981	237	166	357	220	331	228	346	275	296
1982	212	157	322	204	303	206	335	265	281
1983	229	193	334	201	293	229	394	277	316
				United States					
1970	100	100	100	100	100	100	100	100	100
1971	109	105	99	102	96	98	117	105	100
1972	123	120	111	113	107	105	136	116	110
1973	137	135	129	129	125	122	160	130	124
1974	144	139	146	140	143	131	154	138	138
1975	153	121	134	150	145	122	146	136	160
1976	185	138	150	168	158	136	187	152	180
1977	214	155	169	188	179	154	226	171	207
1978	244	176	191	211	206	178	252	195	234
1979	268	192	215	235	241	203	264	215	268
1980	259	197	213	244	264	224	232	220	308
1981	267	213	231	262	291	246	252	231	350
1982	249	210	193	249	279	258	234	221	378
1983	289	231	178	250	264	279	268	230	392

Source: Same as Table 6-A.

Figure 6–C
Growth in Wage & Salary Income
Primary Metals & Motor Vehicle Manufacturing, Ky & US
(Index numbers 1970=100)



7. Nondurable Manufacturing Wage and Salary Income

The relative importance of ten nondurable manufacturing subgroups is shown in Table 7-A for Kentucky and the United States for 1960, 1970, and 1980-83. Amounts are shown as percentages of total nondurable manufacturing wage and salary income. Kentucky and the United States differ in relative importance of the various subgroups, and changes have occurred in their importance over the years. Tobacco manufacturing is from nine to ten times as important in Kentucky as in U.S. manufacturing relative to their totals, although Kentucky's advantage has declined slightly over the years. Food manufacturing is the largest nondurable subgroup for both Kentucky and the nation, but Kentucky's relative importance in food manufacturing decreased substantially between 1960 and 1983 while much less reduction occurred in the nation.

The five largest nondurable subgroups in Kentucky in 1960 (food, chemicals, tobacco, apparel, and printing) accounted for 90.4 percent of the total, but the same groups accounted for only 67.3 percent of the national nondurable total. By 1983, they declined to 72.2 percent of total nondurable wage and salary income for Kentucky and 66.7 percent for the nation. These comparisons suggest a movement toward diversity in Kentucky in nondurable manufacturing. Other differences and changes were the greater increasing importance of rubber, paper, and petroleum refining in Kentucky than in the nation, and a small decline in the importance of chemicals in Kentucky relative to the nation. The relative importance of the ten subgroups in 1960 and 1983, for Kentucky and the nation, is illustrated in Figures 7-A and 7-B.

Growth of wage and salary income in the ten nondurable manufacturing subgroups is shown in Table 7-B for Kentucky and the United States for the 14-year period 1970-83, with amounts expressed as index numbers based on 1970 equal to 100 percent. Large growth rates are shown for Kentucky, between 1970 and 1983, in petroleum refining (index number of 955), rubber (488), and paper (412). These growth rates not only were high among the Kentucky subgroups but were well above national growth in these three series. Kentucky showed greater than national growth also in textiles.

Note that large percentage increases over the years can result from the relatively small size of a group in the beginning year. For example, petroleum refining accounted for only 1.8 percent of Kentucky's total nondurable manufacturing wage and salary income in 1960, and was 1.4 percent of total nondurable manufacturing wage and salary income in 1967. Actual employment in 1967 [the first year for which the Bureau of Economic Analysis (BEA) has issued employment data], was 1082 workers, or 1.0 percent of Kentucky's total employment in nondurable manufacturing. By 1983, BEA estimates that employment in petroleum refining had increased to 3875

TABLE 7-A

Wage and Salary Income in Nondurable Manufacturing: Relative Importance of Ten Subgroups, Kentucky and United States, Selected Years, 1960-1983

(Amounts as Percents of Total Nondurable Manufacturing)

	1960		1970		1980		1981		1982		1983	
Nondurable Manufacturing	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States	Kentucky	United States
Food	33.2%	24.9%	24.2%	22.4%	19.9%	21.4%	19.4%	21.1%	20.5%	21.3%	19.5%	20.7%
Tobacco	12.7	1.1	12.5	0.9	10.8	1.0	10.8	1.1	10.8	1.1	10.3	1.1
Textiles	2.1	9.8	3.9	9.5	3.7	8.0	3.6	7.8	3.7	7.1	3.7	7.4
Apparel	14.0	11.6	14.8	11.4	13.4	9.6	12.8	9.4	12.4	8.9	12.9	9.0
Paper	2.7	9.3	4.6	10.0	6.7	10.6	6.7	10.6	6.8	10.5	7.0	10.7
Printing	11.5	14.6	12.4	15.2	11.5	15.5	11.7	15.6	12.0	16.3	12.5	16.7
Chemicals	19.0	15.1	17.7	17.0	18.5	19.0	18.0	19.1	17.5	19.7	17.0	19.2
Petroleum Refining	1.8	4.2	1.5	3.3	5.0	4.2	5.0	4.3	5.3	4.5	5.3	4.4
Rubber	1.1	5.8	5.8	7.3	8.6	8.8	8.6	9.1	9.4	8.8	10.4	9.1
Leather	2.0	3.7	2.8	2.9	1.9	1.9	1.9	2.0	1.7	1.8	1.4	1.7

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: Because of rounding, amounts do not sum to 100 percent in all cases.

Figure 7–A
Wage & Salary Income in Nondurable Manufacturing
Kentucky & the United States, 1960
(Amounts as Percents of Total Nondurable Manufacturing)

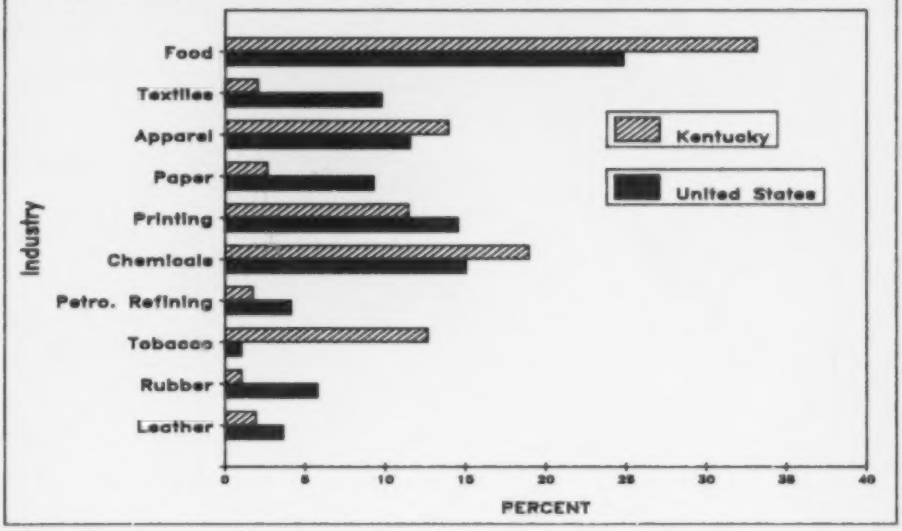


Figure 7–B
Wage & Salary Income in Nondurable Manufacturing
Kentucky & the United States, 1983
(Amounts as Percents of Total Nondurable Manufacturing)

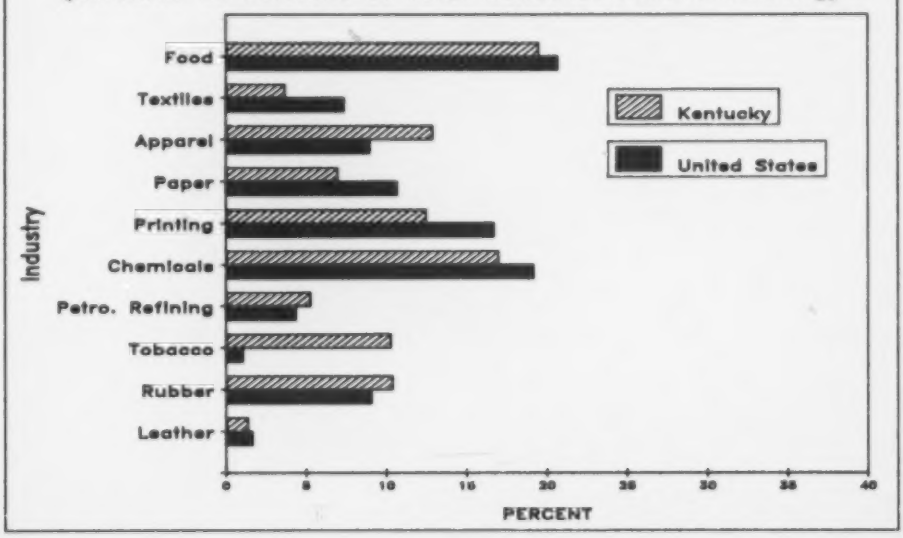


TABLE 7-B

Wage and Salary Income Growth, Ten Nondurable Manufacturing Subgroups, Kentucky and United States, 1970-1983
(Index Numbers: 1970 = 100)

Year	Nondurable Manufacturing Industries									
	Food	Tobacco	Textiles	Apparel	Paper	Printing	Chemicals	Petroleum Refining	Rubber	Leather
					Kentucky					
1970	100	100	100	100	100	100	100	100	100	100
1971	103	102	108	105	113	102	101	194	122	105
1972	107	116	122	120	131	108	108	166	146	125
1973	112	132	135	132	149	120	118	167	161	132
1974	120	143	158	137	167	129	132	319	178	136
1975	130	146	154	134	195	130	142	374	151	128
1976	144	158	184	159	225	144	165	455	176	151
1977	157	164	203	169	253	155	189	551	214	137
1978	165	181	207	179	278	176	207	601	283	150
1979	179	190	221	197	311	196	226	695	341	153
1980	192	202	222	211	340	216	244	772	349	162
1981	204	233	232	219	369	239	259	845	421	168
1982	221	226	249	219	387	254	258	914	423	155
1983	219	225	259	237	412	275	260	955	488	135
					United States					
1970	100	100	100	100	100	100	100	100	100	100
1971	104	103	104	103	103	103	103	106	105	99
1972	108	109	117	111	112	110	109	113	121	104
1973	114	120	128	120	122	118	118	120	137	105
1974	125	131	129	122	132	126	133	135	145	105
1975	132	138	122	120	132	131	141	154	141	101
1976	145	150	142	139	153	143	157	173	163	116
1977	157	158	151	146	170	157	175	193	195	118
1978	171	175	163	160	187	174	192	215	220	127
1979	186	195	173	168	207	193	212	235	248	133
1980	201	225	179	177	223	215	235	264	253	140
1981	215	262	187	188	243	236	257	297	282	155
1982	224	280	177	184	251	254	273	317	283	148
1983	229	300	194	195	267	274	280	324	309	147

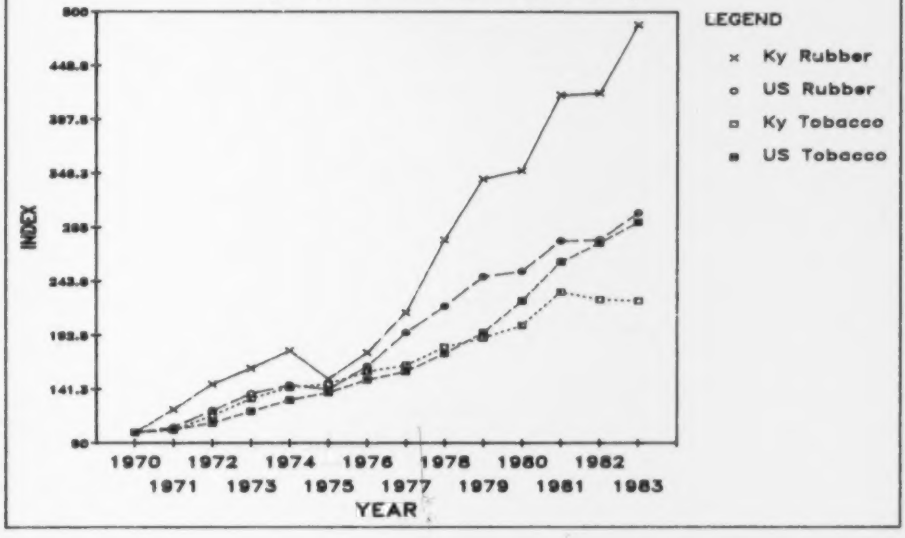
Source: Same as Table 7-A.

workers, or 3.4 percent of total nondurable manufacturing employment. This represented an increase for 1967 to 1983 of 258 percent in petroleum refining employment and was one of the reasons wage and salary income in that group increased to 5.3 percent of the Kentucky total for nondurable manufacturing in 1983. A similar number of new workers, if added to the food manufacturing subgroup for example, would have represented a much smaller employment and income percentage increase.

As noted above, percentage increases in income between 1960 and 1983 were especially large in the paper, petroleum refining, and rubber manufacturing subgroups. Growth was small in Kentucky for food (219), apparel (237), and leather (135), but similar slowness of growth occurred in the national series—food (229), apparel (195), and leather (147).

Kentucky and the nation also differ in the changes in the 1980s and especially in 1983. Only one of the ten subgroups (leather) declined between 1982 and 1983 for the nation, but Kentucky experienced declines in three nondurable manufacturing subgroups—food, tobacco, and leather—and growth was small in chemicals. Tobacco manufacturing in Kentucky declined relative to the nation in the years after 1978. Selected for illustration in Figure 7-C are the differences and changes for Kentucky and the nation in tobacco and rubber manufacturing.

Figure 7–C
Growth In Wage & Salary Income
Tobacco & Rubber Manufacturing Industries, Ky & US
(Index numbers: 1970=100)



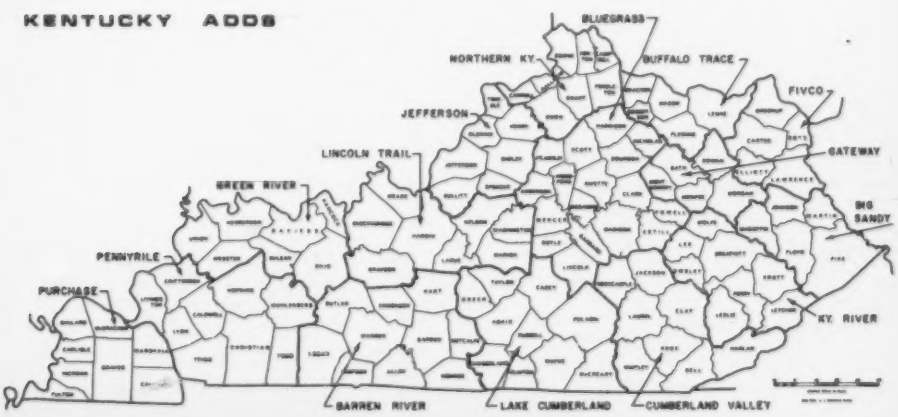
8. Economic Comparisons of Local Areas in Kentucky

The first seven sections of this report concerned population, income, and labor force statistics for the entire state of Kentucky, their differences and changes, and how they compare with national economic statistics. Many interesting comparisons can also be made of smaller areas within Kentucky according to how they differ and change. Two relevant groups for study are the 120 counties and the 15 Area Development Districts (ADDs) into which the Kentucky counties have been grouped. A map showing the ADDs and counties is shown in Figure 8-A. The ADDs can be studied as a group, but the counties are too numerous for convenient study in this small report. Consequently, the analysis of counties is limited to two groups of twenty counties each, with selection based on the highest and lowest levels of per capita personal income in 1982 (latest year for available data).

The interesting characteristics of Kentucky counties are not only their economic diversity but also the degree to which this diversity assumes a different appearance according to which one of several characteristics is studied. For example, a county may be above-average according to one standard measure of economic conditions, such as residents' per capita personal income, but much lower according to another standard measure of economic conditions, such as the average earnings of people who work at jobs in the county.

There are at least two groups of reasons for these inconsistencies. One is that per capita personal income is reported annually according to county

Figure 8—A
Official Boundaries of the
Kentucky Area Development Districts



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of residence while average earnings are reported annually according to county of work (the business location). These differences have greater distorting effects on statistical data as the geographical area covered is smaller. A second explanation of these inconsistencies is the high degree of intercounty commuting for working and shopping in Kentucky, resulting mainly from the small size of most counties, the uneven distribution among counties of available jobs relative to resident populations, the reluctance to change residence among counties for work purposes, the willingness to travel long distances to work, and the availability of good roads for easy commuting among counties. Stated differently, a shortage of economic opportunity in one county often requires daily work commuting to another county, a practice that is much preferred to moving one's residence to the new job site and which is encouraged by the availability of good roads and relatively short distances among counties.

Because of these economic characteristics and conditions among Kentucky counties, local economic conditions cannot be analyzed adequately by examining individual counties. Instead, analysis is more meaningful, in many cases, if based on groups of counties, such as ADDs. Much of the statistical distorting effects of the intercounty commuting is internalized within the ADD. That is, commuting among counties within an ADD does not affect statistical data for that ADD, even though individual county statistics are greatly influenced by commuting. A person's place of work and place of residence may be in different counties but in the same ADD. For these various reasons, local areas in Kentucky are analyzed in this report, first according to the 15 ADDs (Tables 8-A, B and C), second according to commuting in and out of Fayette County (Table 8-D), third according to the 20 highest and 20 lowest counties measured by per capita personal income (Tables 8-E and F), and fourth according to individual characteristics of two counties chosen for a case study of economic similarities and differences (Martin and Carlisle Counties in Table 8-G).

Area Development Districts

Kentucky's 15 ADDs are described in Tables 8-A and B according to four characteristics: population size, unemployment rate, per capita personal income, and average earnings of laborers and proprietors. Although amounts are shown for 1970 (or 1971), 1980, and 1982, the descriptive analysis is for 1982 unless stated otherwise. The population statistics show considerable variety in the size of the ADDs, ranging from the Kentucky portion of KIPDA (the Kentuckiana Regional Planning and Development Agency in and around Jefferson County), with over 20 percent of the state's population, to Buffalo Trace and Gateway ADDs with less than 2 percent each. Most of the ADDs, however, have population size in the range of 3 to 9

TABLE 8-A
Kentucky Area Development Districts: Population and Unemployment

Area Development Districts' (ADDs) Values as Percentages of State Values						
	Population			Unemployment Rate		
Area Development Districts	1970 (Percent of State Total)	1980	1982	1971 (Percent of State Rate)	1980	1982
1. Purchase	5.2%	4.9%	4.8%	107%	124%	106%
2. Pennyrile	5.5	5.6	5.6	99	109	100
3. Green River	5.6	5.4	5.4	113	88	86
4. Barren River	5.8	5.9	6.1	91	116	111
5. Lincoln Trail	5.9	5.9	5.8	106	113	106
6. KIPDA (Kentucky portion)	24.1	22.0	21.8	89	97	106
7. Northern Kentucky	9.0	8.6	8.6	99	78	88
8. Buffalo Trace	1.6	1.5	1.5	65	107	117
9. Gateway	1.7	1.8	1.8	117	138	137
10. FIVCO	3.8	3.8	3.8	153	132	136
11. Big Sandy	4.2	5.0	5.0	158	95	110
12. Kentucky River	3.3	3.7	3.7	155	143	156
13. Cumberland Valley	5.7	6.2	6.3	151	126	114
14. Lake Cumberland	4.4	4.7	4.7	100	117	106
15. Bluegrass	14.2	15.0	15.1	78	73	68
State of Kentucky	100.0	100.0	100.0	100	100	100

Source: All ADD-level values have been computed from county-level estimates and stored in the County Databank (CBANK) of the Kentucky Economic Information System (KEIS). The computations from which the data in this table result have also been done within the KEIS. The original county- and state- level data are from the U.S. Department of Commerce, Bureau of the Census (population), and the Kentucky Cabinet for Human Resources (unemployment rate).

Note: Population and Unemployment Rate are residence-based estimates. Annually comparable estimates of county-level unemployment begin in 1971.

percent of the state total. Some relative population changes are evident for the 13-year period. Most of these changes were small, although KIPDA lost 2.3 percentage points, Bluegrass ADD gained 0.9 points, and large relative gains were made in the Big Sandy and Cumberland Valley ADDs.

Unemployment rates for particular ADDs are shown as percentages of the state average, with percentages below 100 indicating relatively low rates of unemployment, and percentages above 100 indicating relatively high rates. Note that the terms "relatively low" and "relatively high" mean that rates differ from the state average unemployment rate, which was at an historically high rate, being 10.6 percent in 1982. Also note that because only four of the ADDs were either equal to, or below, the 1982 state average rate of unemployment, and because it is common to expect that an average will divide a group approximately in half, an obvious question is whether a mistake has been made. The reason for these peculiar results is the population differences among ADDs. Low unemployment rates in a small number of large-population ADDs can offset higher unemployment rates in a large

TABLE 8-B

Kentucky Area Development Districts: Per Capita Personal Income and Average Earnings Per Job, 1970, 1980, and 1982

Area Development Districts' (ADDs) Values as Percentages of State Values						
	Per Capita Personal Income			Average Earnings Per Job		
Area Development Districts	1970	1980	1982	1970	1980	1982
	(Percent of State Average)					
1. Purchase	95%	100%	101%	94%	91%	91%
2. Pennyrile	96	100	101	91	92	93
3. Green River	101	109	111	99	105	106
4. Barren River	81	86	87	75	78	82
5. Lincoln Trail	95	80	83	83	77	77
6. KIPDA (Kentucky portion)	128	122	121	123	115	115
7. Northern Kentucky	114	111	109	98	94	91
8. Buffalo Trace	85	77	79	78	68	70
9. Gateway	72	72	72	74	72	72
10. FIVCO	92	97	94	111	125	123
11. Big Sandy	72	88	87	110	135	133
12. Kentucky River	64	72	73	97	116	114
13. Cumberland Valley	67	76	75	88	99	98
14. Lake Cumberland	68	69	71	65	66	66
15. Bluegrass	106	108	110	97	99	101
State of Kentucky	100	100	100	100	100	100

Source: All ADD-level values have been computed from county-level estimates and stored in the County Databank (CBANK) of the Kentucky Economic Information System (KEIS). The computations from which the data in this table result have also been done within the KEIS. The original county- and state- level data are from the U.S. Department of Commerce, Bureau of Economic Analysis.

Note: Per Capita Personal Income is a residence-based estimate; Average Earnings Per Job is a workplace-based estimate.

number of small-population ADDs. Compared to the state average, unemployment rates were very high in 1982 in the Kentucky River, Gateway, and FIVCO ADDs, while the Bluegrass ADD had a very low rate. There were also relatively low rates in the Green River and Northern Kentucky ADDs. Another interesting difference among ADDs according to unemployment rates is the large relative changes between the years shown, such as the increase in 1980 in the Purchase, Lake Cumberland, and Buffalo Trace ADDs, the declines in 1980 and 1982 in the Green River ADD, and the ups and downs in the Northern Kentucky ADD. Especially interesting is the very large relative drop in unemployment rate for the Big Sandy ADD from 1970 to 1980 and the sizeable drop in the Cumberland Valley ADD over the period shown. Also, the Bluegrass ADD has been consistently below average in unemployment rate.

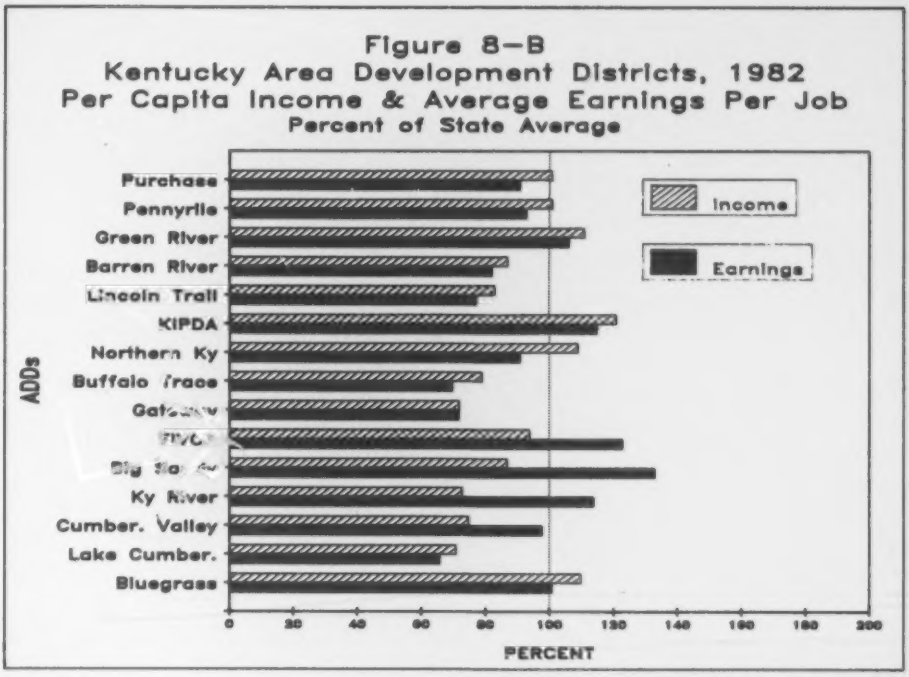
Per capita personal income and the average earnings of laborers and proprietors, shown in Table 8-B, both vary greatly among ADDs. In interpreting these data, note that the 15 ADDs differ in population size, mean-

ing that it is not necessary that the group of 15 ADDs be divided evenly above and below the state average of income or earnings. For example, six ADDs were above the state average of per capita personal income in 1982 (values greater than 100 in the table) while the other nine were below average. But these six above-average ADDs had 61.3 percent of the state population in 1982 while the other nine below-average ADDs accounted for only 38.7 percent. The highest income level was in KIPDA. Income levels were especially low in the Buffalo Trace, Gateway, Kentucky River, Cumberland Valley, and Lake Cumberland ADDs (all below 80 percent of the state average in 1982). Some important changes occurred in relative position over the 13-year period, such as decreases for the KIPDA, Northern Kentucky, Buffalo Trace, and Lincoln Trail ADDs, while much improvement occurred in the Green River, Big Sandy, Kentucky River, and Cumberland Valley ADDs.

Average earnings levels also vary widely among ADDs, but the patterns of per capita personal income and average earnings differences do not match in many cases. For example, the Bluegrass ADD is nearly average in earnings levels but well above average in levels of per capita personal income. Much the same is found for the Purchase, Pennyrile, and Northern Kentucky ADDs. The opposite relationship (below-average levels of per capita personal income but much higher levels of average earnings) are found in the FIVCO, Big Sandy, Kentucky River, and Cumberland Valley ADDs. These variations are explained by workers commuting among ADDs and states, by varying levels of earnings among industries, and by the reporting of per capita personal income statistics according to place of residence but of average earnings statistics according to place of work. The different profiles of ADDs measured by per capita personal income and average earnings are illustrated in Figure 8-B.

Table 8-C describes the 15 ADDs according to four sources of personal income: labor and proprietors' farm and nonfarm income, transfer payments, and investment income (dividends, interest, and rent). Importance of agriculture varies widely among ADDs; also, the income shares from agriculture vary widely over the three years shown, caused in part by the influence of growing conditions. These year-to-year variations in farm income affect the statistical results for the other three sources because all amounts are expressed as percentages of total income. That is, a large change in the contribution of farm income to the total must be offset by opposite changes in other sources, within the confines of a 100 percent total.

Investment income also differs among ADDs and has generally increased in importance as a source of total income over the years shown. Differences for transfer payments are especially interesting. Not only have transfer payments become much more important in the 1980s but the differences among ADDs were much smaller in 1982 than in 1970. In 1970, the highest



and lowest relative contributions of transfer payments were 25.1 percent and 8.2 percent, for a range of 16.9 percentage points. In 1982, these extremes were 26.5 percent and 13.9 percent, for a range of 12.6 percentage points. Because the ADD with highest dependence on transfer payments was the same in both years (the Kentucky River ADD), the changes between 1970 and 1982 were caused by the other ADDs increasing their reliance on transfer payments. This is also shown by the state average contribution of transfer payments to total personal income increasing from 11.4 percent in 1970 to 16.2 percent in 1982. Even the relatively prosperous Bluegrass ADD received 13.9 percent of its total personal income from transfer payments in 1982.

Worker Commuting Relative to Fayette County

A recent study published by the Kentucky Department of Economic Development, using unpublished data from the 1980 U.S. Census of Population, gives detailed information on the number of workers who commute, with identification of places of residence and places of work (counties and states). Among the many interesting relationships to be found in the study are the numbers of workers commuting among counties in particular Area Development Districts (ADDs) in Kentucky. Because of space limitations in this report, commuting patterns are examined only for the Bluegrass ADD.

Among the 15 Kentucky ADDs, the Bluegrass ADD is distinctive in that it is not close to a state border, it includes one of Kentucky's Metropolitan

TABLE 8-C

Kentucky Area Development Districts: Sources of Personal Income, 1970, 1980, and 1982

Area Development Districts	Sources as Percentages of Total Personal Income											
	Labor and Proprietors' Income											
	Farm			Nonfarm			Transfer Payments			Investment Income		
	1970	1980	1982	1970	1980	1982	1970	1980	1982	1970	1980	1982
1. Purchase	3.7	0.8	1.6	76.7	69.6	63.8	13.1	18.5	19.5	11.9	17.1	20.9
2. Pennyrile	5.2	3.1	3.0	83.2	75.5	74.1	12.7	17.5	18.1	9.9	13.3	16.0
3. Green River	4.9	0.4	1.6	70.7	73.7	68.7	11.1	14.2	15.0	12.3	14.7	17.6
4. Barren River	12.1	7.8	7.6	67.0	62.6	60.9	13.0	17.3	17.4	11.0	15.0	17.4
5. Lincoln Trail	7.7	4.8	4.5	74.6	63.2	61.3	9.5	16.8	17.7	7.7	12.5	15.0
6. KIPDA (Kentucky portion)	1.1	0.7	0.8	85.9	81.7	77.2	8.2	13.6	14.7	12.8	15.0	17.9
7. Northern Kentucky	1.9	0.9	1.1	45.4	47.6	44.2	9.5	13.5	14.6	11.0	12.5	15.2
8. Buffalo Trace	16.9	8.4	11.1	54.8	54.5	48.4	12.7	19.4	20.2	11.7	15.9	18.3
9. Gateway	13.2	6.5	7.6	57.5	56.2	51.8	16.0	21.2	22.0	9.3	12.7	15.2
10. FIVCO	2.6	0.9	1.2	84.1	81.6	76.8	13.4	16.9	18.4	9.7	11.2	13.9
11. Big Sandy	0.7	0.3	0.3	76.5	77.1	75.6	18.1	20.5	21.0	6.6	9.8	11.6
12. Kentucky River	2.4	1.0	1.3	71.2	65.7	62.1	25.1	26.5	26.5	5.3	8.2	10.1
13. Cumberland Valley	3.3	1.4	1.6	67.4	67.2	65.2	23.7	25.8	26.1	7.7	10.1	12.3
14. Lake Cumberland	13.8	7.5	7.6	58.9	55.4	53.2	18.1	23.3	23.6	9.5	13.8	16.1
15. Bluegrass	6.4	7.2	8.0	76.9	71.5	68.0	9.9	13.5	13.9	12.3	14.0	16.2
State of Kentucky	4.3	2.9	3.2	74.5	70.7	67.1	11.4	16.2	17.0	11.1	13.6	16.2

Source: Same as Table 8-B.

Note: Investment Income includes personal income interest, dividends, and rental income. Because of the residence adjustment built into total personal income, which is not shown above, the categories of personal income do not sum to 100 percent for all ADDs for all years.

Statistical Areas (MSA, as defined by the U.S. Office of Management and Budget), and it is large, including 16 counties in addition to the central county—the Lexington-Fayette Urban County. Data for 1980 are presented in Table 8-D for the number of workers who reside in Fayette County but who commuted to work in other counties in the Bluegrass ADD. Also shown are the number of workers who resided in other counties in the Bluegrass ADD but who commuted to work in Fayette County. These amounts are shown as totals for individual counties and as totals for the Bluegrass ADD. Also shown are totals of commuters into and out of Fayette County relative to counties and states outside the Bluegrass ADD.

Total number of full-time and part-time jobs in Fayette County in 1980 was 122,432 (according to annual data from the Bureau of Economic Analysis), and the number of workers who commuted into Fayette County

TABLE 8-D

Worker Commuting Relative to Fayette County and the Counties of the Bluegrass Area Development District, 1980

Counties	Number of Commuters Relative to Fayette County[a]	
	Out of Fayette	Into Fayette
Anderson	13	455
Bourbon[b]	344	1,850
Boyle[b]	42	18
Clark[b]	436	2,073
Estill	10	419
Franklin	1,206	853
Garrard	19	550
Harrison[b]	86	453
Jessamine[b]	614	5,283
Lincoln	0	228
Madison	495	2,162
Mercer	41	866
Nicholas	49	196
Powell	22	323
Scott[b]	773	2,229
Woodford[b]	530	2,129
Total Bluegrass ADD	4,680	20,087
All other counties and states	1,798	3,222
Total commuting out of or into Fayette County	6,478	23,309

Source: *Commuting in Kentucky* (Frankfort, Ky: Kentucky Department of Economic Development, 1984), pp. 44-46; based upon unpublished data from the 1980 Census of Population conducted by the U.S. Department of Commerce, Bureau of the Census.

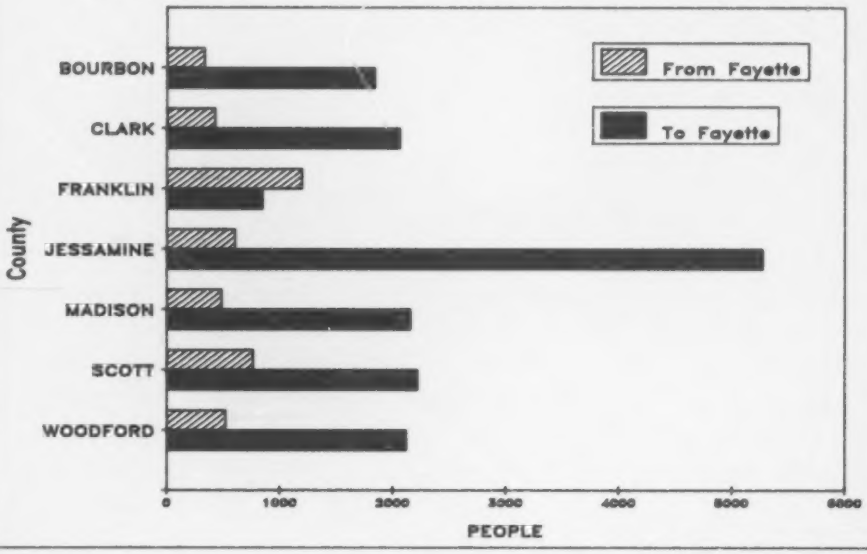
Notes

[a] According to data from the U.S. Department of Commerce, Bureau of Economic Analysis and Bureau of the Census, as well as the Kentucky Cabinet for Human Resources, in 1980 Fayette County had, respectively, total employment by place of work, 122,432; total population, 204,165; and total employment by place of residence, 109,047.

[b] The counties noted comprise, together with Fayette County, the Lexington-Fayette Metropolitan Statistical Area.

from other counties and states was 23,309, according to the 1980 Census. While not strictly comparable because of their different sources (see note in Table 8-D), these data suggest that in-commuters were approximately 19 percent of total employment in Fayette County in 1980. Most of the in-commuters (20,087) were from other counties in the Bluegrass ADD. The largest group of in-commuters was from Jessamine County (5,283), but about 2,000 came from each of five other counties in the Bluegrass ADD: Bourbon, Clark, Madison, Scott, and Woodford Counties. These counties are contiguous to Fayette County and all but Madison County are in the Lexington-Fayette MSA. There was less in-commuting from non-contiguous counties, suggesting that time and distance required for commuting were important influences. The total of out-commuting (that is, residents of Fayette County who work in other counties and states) was 6,478 workers (5.3 percent of total jobs in Fayette County), with by far the largest part being to jobs within the Bluegrass ADD. Franklin County (site of state government) was the largest recipient of out-commuters from Fayette County (1,206), but large numbers also commuted from Fayette County to Scott, Jessamine, Woodford, Madison, Clark, and Bourbon Counties. Thus, the patterns are similar for in- and out-commuting, with most commuting being among counties contiguous to Fayette County, and with considerably more in-commuting than out-commuting. The more important features of these commuting patterns are illustrated in Figure 8-C.

Figure 8—C
Worker Commuting Relative to Fayette County
Seven Largest Commuting Populations, 1980



Large degrees of intercounty commuting have important effects and create problems in measuring and describing economic characteristics of local areas. Standard economic statistical measures may give different pictures of a local area, depending upon whether the data are according to place of residence or place of work. For example, per capita personal income is measured annually by place of residence, meaning that the earnings of the 23,309 nonresident workers in Fayette County (after a statistical estimation procedure known as the "residence adjustment component" of personal income) are reported as personal income of the several counties (and states) in which these workers reside. On the other hand, average earnings is a standard measure reported according to place of work, meaning that earnings of the 6,478 Fayette County residents who worked in other counties or states are reported as average earnings occurring in those places. Hence, the earnings of a Fayette County resident working at a state government office in Franklin County are reported as earnings of workers in Franklin County but as personal income of residents in Fayette County. Because of these statistical reporting procedures, a particular county might appear economically prosperous in terms of per capita personal income but be low in terms of average earnings of workers if, for example, many of its residents worked in high-wage factory jobs in other counties while only a few of its residents worked in the home county and worked at low-wage service type jobs.

Another widely used economic statistical measure that is influenced by the place of residence and place of work difference is the unemployment rate, especially in its interpretation. Although the unemployment rate is measured according to place of residence, the fact of being employed or unemployed is related to place of work. A high or low rate of unemployment in a particular county does not necessarily suggest low or high levels of business activity insofar as the jobs, or lack of jobs, are associated with the counties to which workers commute. For example, an extreme case can be imagined where all of the workers in a factory in County A reside in County B, so that closing of the factory would have a small effect on employment in County A while causing much unemployment of residents of County B. Moreover, remedial action to restore employment at the factory would likely be expected of local governments and private groups in County A whereas the unemployment-associated hardships would actually be visited upon residents of County B.

The suggestion that follows from the analysis of commuting is that, in Kentucky, the county is perhaps too small an area for economic analysis and planning and that, instead, broader areas such as ADDs would better serve the purposes. The following analysis of particular counties strengthens this observation.

Economic Profiles of Selected Groups of Counties

Tables 8-E and 8-F profile 42 Kentucky counties according to four measures for 1982: per capita personal income, average earnings of laborers and proprietors, labor force participation rate, and total unemployment rate. Selection of counties is according to per capita personal income, with Table 8-E showing the 20 highest counties ranked and measured according to 1982 per capita personal income; Table 8-F is similar but is for the 20 lowest per capita personal income counties. Aiso included in the tables are data for Martin and Carlisle Counties because their characteristics illustrate some unusual reltionships among county areas, a subject analyzed as a case study later in this section. Note that although the average earnings measure is by place of work and the other three measures are by place of residence, economic conditions in one county can have important effects on economic conditions in other counties. For example, a county with a high rate of labor force participation and low rate of unemployment may enjoy these favorable conditions because of job opportunities existing in neighboring counties.

Probably the most important difference shown in each of the two tables is how widely the rankings can differ among the four measures for particular counties. In Table 8-E, Jefferson County's ranks were 4, 13, 43 and 58 according to the four measures reading from left to right in the table. Boyd County, according to the four measures read in the same order, had ranks of 7, 6, 87, and 73. Union County had ranks of 17, 8, 8, and 9 in the same order. Most unusual is Martin County which had a rank of 50 in per capita personal income but ranked first in both average earnings and labor force participation rate and second in unemployment rate. Similarly in Table 8-F for the 20 lowest income counties, rankings of particular counties differ widely among the four economic measures. Some counties are consistently low in the four measures (such as Edmonson, Jackson, Menifee, and Owsley Counties), but substantial differences are shown for other counties. Magoffin County's ranks were 101, 25, 36, and 77 according to the four economic measures, reading from left to right in the table. Leslie County, in the same order, had ranks of 104, 39, 107, and 82. Rockcastle County had ranks of 112, 107, 15, and 44. Also shown is Carlisle County because it ranks 120 (state's lowest) in average earnings but, as shown in the table, ranks considerably higher in the three other measures. Moreover, Carlisle County had nearly the same 1982 per capita personal income as Martin County ($8,000 for Carlisle and $7,920 for Martin) while Martin County had ranks of 1, 1, and 2 for the three other measures.

Two questions are suggested by the comparisons in Table 8-E and 8-F. One question is whether county data, especially if only one measure is used, are meaningful for analysis of local areas. The second question is what

TABLE 8-E

High Income Kentucky Counties Compared on Selected Indicators, 1982

County	Per Capita Personal Income[a]		Average Earnings[a]		Labor Force Participation Rate[a]		Total Unemployment Rate[a]	
	Dollars	Rank[b]	Dollars	Rank[b]	Percent	Rank[b]	Percent	Rank[b]
Bourbon	$12,788	1	$19,141	11	79.1%	3	6.9%	8
Woodford	12,213	2	17,423	17	77.2	5	5.6	4
Fayette	11,390	3	17,745	15	72.3	16	5.1	1
Jefferson	11,312	4	18,270	13	63.9	43	11.4	58
Franklin	10,980	5	15,272	29	62.5	49	7.3	12
Hopkins	10,777	6	17,080	21	62.7	48	9.1	25
Boyd	10,515	7	20,216	6	54.2	87	12.3	73
McCracken	10,452	8	16,154	24	68.7	24	8.8	19
Campbell	10,364	9	14,220	36	66.3	30	9.1	26
Webster	10,364	9	15,941	26	59.8	63	9.4	29
Henderson	10,287	11	15,469	28	65.7	33	9.2	27
Daviess	10,253	12	15,563	27	68.4	25	9.0	24
Kenton	10,098	13	14,630	33	66.1	31	8.9	21
Simpson	9,721	14	13,864	37	60.3	58	13.9	87
Muhlenberg	9,631	15	19,172	10	64.2	42	11.7	64
Carroll	9,409	16	16,911	22	74.9	9	5.2	3
Union	9,372	17	19,475	8	75.7	8	7.0	9
Clark	9,316	18	14,913	31	80.2	2	8.9	23
Boone	9,273	19	15,036	30	66.6	29	10.0	42
Scott	9,195	20	13,585	42	78.9	4	7.1	10
Martin[c]	7,920	50	32,749	1	87.8	1	5.2	2

Source: County-level estimates of Per Capita Personal Income and Average Earnings Per Job are issued by the U.S. Department of Commerce, Bureau of Economic Analysis. Estimates of the Civilian Labor Force and Unemployment Rate are from the Kentucky Cabinet for Human Resources. All these data are stored in the County Databank (CBANK) of the Kentucky Economic Information System (KEIS), and all rankings were computed within the KEIS. Labor Force Participation Rate is computed within the KEIS from the civilian labor force and the estimate of the labor force population. The original disaggregated population data are from the Urban Studies Center, University of Louisville.

Notes

[a] Per Capita Personal Income is a residence-based measure and is the sum of net labor and proprietors' income by place of work, adjusted for residence of the workers, plus transfer payments income and investment income, divided by the total resident population of the county. Labor Force Participation Rate and Unemployment Rate are residence-based measures. Average Earnings Per Job is a workplace-based estimate and is computed by the source agency; they divide total labor and proprietors' income by the total number of jobs (full and part-time).

[b] The counties chosen for presentation in this table were the 20 Kentucky counties that ranked (with highest # 1) as the top counties measured according to Per Capita Personal Income. The rankings for Average Earnings and Labor Force Participation Rate are also from highest to lowest; however, the ranking on Unemployment Rate is reversed. In other words, the county with the lowest Unemployment Rate would be county # 1 (Fayette, in 1982).

[c] Martin County did not qualify for inclusion as a High Income County on the basis of Per Capita Personal Income, since it ranked # 50 on this measure in 1982. However, it ranked # 1 on the basis of Average Earnings and Labor Force Participation, and # 2 on the basis of its low Unemployment Rate in 1982. Hence data on Martin County are included here for comparative purposes and to illustrate the varying rank of counties, depending upon which measure is being ranked.

reasons cause the wide differences in rankings for particular counties described by the four different economic measures. The answer previously suggested for the first question is that county data probably are inadequate and that the study of broader local areas, such as ADDs, might give more

TABLE 8-F

Low Income Kentucky Counties Compared on Selected Indicators, 1982

County	Per Capita Personal Income[a]		Average Earnings[a]		Labor Force Participation Rate[a]		Total Unemployment Rate[a]	
	Dollars	Rank[b]	Dollars	Rank[b]	Percent	Rank[b]	Percent	Rank[b]
Magoffin	$5,642	101	$16,139	25	65.4%	36	13.1%	77
Russell	5,636	102	8,156	108	46.6	104	14.9	97
Carter	5,613	103	10,880	71	51.3	96	18.6	114
Leslie	5,538	104	13,785	39	45.4	107	13.6	82
Knox	5,532	105	12,816	50	54.9	84	11.3	57
Morgan	5,422	106	10,997	68	60.7	57	13.5	81
Wayne	5,363	107	9,138	94	64.6	38	13.8	83
Lewis	5,343	108	8,503	104	58.6	72	14.0	89
Edmonson	5,330	109	7,679	115	45.2	108	21.4	117
Lee	5,329	110	12,165	57	38.7	119	16.4	106
Wolfe	5,303	111	9,535	83	45.4	106	18.0	113
Rockcastle	5,245	112	8,405	107	72.5	15	10.1	44
Metcalfe	5,237	113	6,739	119	62.3	51	11.7	65
Casey	5,222	114	7,658	116	60.1	60	11.6	62
Elliott	5,023	115	8,527	103	57.7	76	13.8	86
Clinton	4,927	116	7,692	114	52.9	91	16.2	105
Jackson	4,818	117	9,223	93	45.9	105	16.9	109
Menifee	4,575	118	7,174	117	40.7	117	27.8	120
McCreary	4,522	119	12,322	53	49.5	98	15.1	99
Owsley	4,464	120	9,385	86	43.7	113	15.3	101
Carlisle[c]	8,000	49	6,522	120	58.6	73	11.6	63

Source: Same as 8-E.

Notes

[a] Per Capita Personal Income is a residence-based measure and is the sum of net labor and proprietors' income by place of work, adjusted for residence of the workers, plus transfer payments income and investment income, divided by the total resident population of the county. Labor Force Participation Rate and Unemployment Rate are residence-based measures. Average Earnings Per Job is a workplace-based estimate and is computed by the source agency; they divide total labor and proprietors' income by the total number of jobs (full and part-time).

[b] The counties chosen for presentation in this table were the 20 Kentucky counties that ranked lowest (#s 101-120) in terms of their level of Per Capita Personal Income. The rankings for Average Earnings and Labor Force Participation Rate are also from highest to lowest, with the larger rank numbers reflecting lower levels. The ranking on Unemployment Rate is reversed, i.e., the county with the highest Unemployment Rate is the county ranked #120 (Menifee, in 1982).

[c] Carlisle County did not qualify for inclusion as a Low Income County on the basis of Per Capita Personal Income, since it ranked # 49 on this measure in 1982. However, it was the lowest ranked county, i.e., # 120, on the basis of Average Earnings. Hence data on Carlisle County are also included in this table for comparative purposes.

meaningful results. Some answers to the second question also have been suggested in the previous description, such as the large amount of inter-county commuting for work, and the annual reporting of average earnings according to place of work and of the other three economic measures according to residence. Other reasons concern the several sources of personal income other than from labor, such as transfer payments and investment income.

Considering the diversity of personal income sources, the large degrees of worker commuting, and the different ways of reporting economic statistics,

it seems obvious that the economic profile of a particular county cannot adequately be described by any one economic measure. Moreover, a county's economic profile as described by several economic measures still reflects a large amount of interdependency among counties.

Case Study of Martin and Carlisle Counties

The diversity of county rankings when described according to four different economic measures is highlighted by a case study of two counties that exhibit unusual similarities and differences. Selected economic and other data are summarized in Table 8-G. Martin County (in the Big Sandy ADD) is on Kentucky's eastern border with West Virginia, while Carlisle County (in the Purchase ADD) is similarly located in the west along the Mississippi River, and both are non-urban counties not included in a Metropolitan Statistical Area. Carlisle County has substantial agricultural activity, while Martin County has very little farming and coal mining is by far its major economic activity. Carlisle County's population is only about 38 percent of that in Martin County. The 1982 unemployment rate was unfavorable in Carlisle County (11.6 percent compared with only 5.2 percent in Martin County), and the labor force participation rate was also unfavorable in Carlisle County (58.6 percent compared with 87.8 percent in Martin County). Thus, Carlisle County had a much larger percentage of population either unemployed or not in the labor force. Average earnings of laborers and proprietors working on jobs located in these counties were only $6,522 in Carlisle County (lowest of all counties in 1982) whereas the same statistic in Martin County was $32,749 (highest of all counties in 1982). Nevertheless, as noted, these two counties were nearly identical in 1982 per capita personal income ($8,000 for Carlisle and $7,920 for Martin).

Intercounty worker commuting is an important reason for these widely different amounts for the several economic characteristics for Carlisle and Martin Counties. Summarized at the bottom of Table 8-G are dollar amounts of various dimensions of labor and proprietors' income, and these amounts are also expressed as percentages of totals. Because Martin County has about 2.65 times the population and total personal income of Carlisle County, easier comparison is made by viewing the percentage of total columns instead of the dollar columns. For Carlisle County, total personal income came 24.2 percent from transfer payments and 21.9 percent from investments, for a combined total of 46.1 percent; the remaining 53.9 percent was net labor and proprietors' income, by place of residence. But of these 53.9 percentage points of total personal income, only 24.7 points were derived from work in the county, by county residents. The remaining 29.2 points came from "net commuting earnings," which is the excess of earnings by Carlisle County residents working outside the county, over earn-

TABLE 8-G

Carlisle and Martin Counties Compared According to Selected Economic Measures, 1982

Economic Measure	Carlisle County, KY		Martin County, KY	
	Amount	% of Total	Amount	% of Total
Population	5,300	---	14,000	---
Per Capita Personal Income	$8,000	---	$7,920	---
Average Earnings per Job	$6,522	---	$32,749	---
Total Unemployment Rate	11.6%	---	5.2%	---
Labor Force Participation Rate	58.6%	---	87.8%	---
Employment, by place of work	1,760	100.0%	4,547	100.0%
Total Farm Employment	732	41.6	NA	---
Farm Proprietors	649	36.9	25	0.5
Farm Wage and Salary Workers	83	4.7	NA	---
Total Nonfarm Employment[a]	1,028	58.4	4,521	99.4
Nonfarm Proprietors	271	15.4	189	4.2
Nonfarm Wage and Salary Workers	757	43.0	4,332	95.3
Mining	0	---	2,944	64.7
Contract Construction	14	0.8	54	1.2
Manufacturing	144	8.2	19	0.4
Transportation, Communications, Public Utilities	33	1.9	176	3.9
Trade—wholesale and retail	170	9.6	303	6.6
Finance, Insurance, Real Estate	59	3.4	56	1.2
Services	108	6.1	163	3.6
Government	223	12.7	617	13.6
Net Labor and Proprietors' Income, by place of work[b]	$10,730,000	24.7%	$140,285,000	122.9%
Net Commuting Earnings (Residence Adjustment)[c]	12,694,000	29.2	(53,763,000)	(47.1)
Net Labor and Proprietors' Income, by place of residence	23,424,000	53.9	86,522,000	75.8
Dividends, Interest, Rent	9,531,000	21.9	8,809,000	7.7
Transfer Payments[d]	10,510,000	24.2	18,854,000	16.5
Total Personal Income, by place of residence	43,465,000	100.0	114,185,000	100.0

Source: Same as Table 8-E. Also, data on disaggregated employment by industry and on the components of Personal Income are from the U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Notes

[a]Total Nonfarm Employment also includes employment in agricultural services, fisheries, forestry and other.
[b]Net Labor and Proprietors' Income by place of work is Total Labor and Proprietors' Income by place of work less the personal contributions for social insurance.
[c]Residence Adjustment is the earnings of county residents working outside the county, less earnings by nonresidents working in the county.
[d]Transfer Payments are income payments for which current services are not rendered. Nationally in 1982, Transfer Payments accounted for approximately 14.5 percent of Total Personal Income (see Table 3-B).

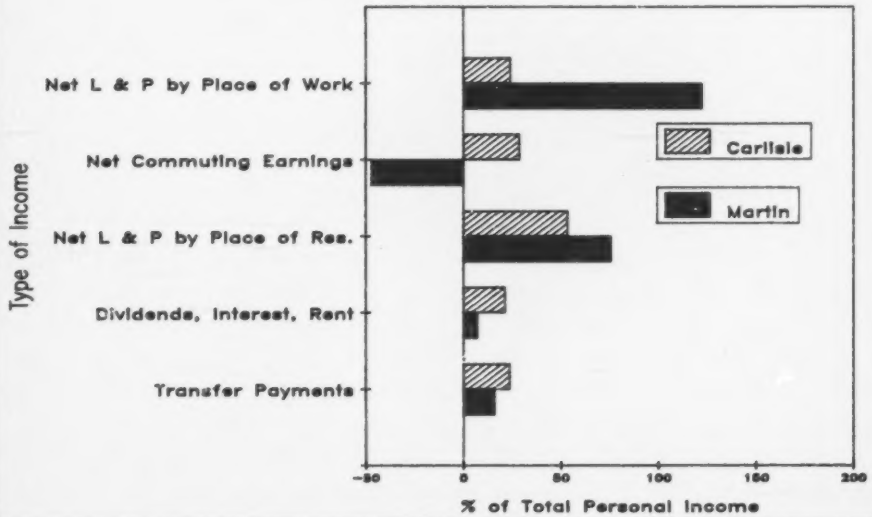
ings of non-residents working in Carlisle County. Because Carlisle County ranks much higher in per capita personal income than in average earnings, these differences suggest that out-commuters from Carlisle County worked at jobs that paid much higher wages than did jobs in Carlisle County.

A larger percentage of commuting is shown for Martin County than for Carlisle County, and the movement is in the opposite direction. In-commuting is very important in Martin County, in contrast to the out-commuting in Carlisle County. Only 24.2 percent of total personal income

came from the combination of transfer payments plus investment income in Martin County, with the largest share, 75.8 percent, coming from net labor and proprietors' income by place of residence. But in Martin County the amount of net labor and proprietors' income generated in the county was larger than total personal income, being 122.9 percent. This strange result is caused by a large number of non-residents commuting into Martin County for work. The excess of earnings by in-commuters over out-commuters relative to Martin County was $53,763,000 which was 47.1 percent of the amount shown for total personal income. Thus, the "residence adjustment" for Martin County not only was larger than for Carlisle County (47.1 percent compared with 29.2 percent) but these adjustments were in opposite directions. These differences in personal income sources for Martin and Carlisle Counties are illustrated in Figure 8-D.

To restate some previous conclusions: (a) a meaningful profile of a particular county cannot be based on any one economic measure; (b) there is reasonable doubt that a meaningful county profile can be achieved even if several measures are used; (c) the economic values that describe particular counties can be strongly affected by economic conditions in neighboring counties, such as the strong economic activity in Martin County causing favorable values in neighboring counties for per capita personal income and the rates of labor force participation and unemployment; and (d) greater emphasis on economic analysis of ADDs would likely give much better results for local areas.

Figure 8–D
Carlisle and Martin Counties Compared
Selected Economic Measures
1982



9. Relative Importance of State and Local Revenue Sources

Four tables are presented to analyze the relative importance of revenue sources for state and local governments, with Kentucky compared to the group of 50 states. Table 9-A shows major parts of total general revenue, and the total tax revenue portion is shown again in Table 9-B according to particular tax types. Both of these comparisons combine state and local governments. Table 9-C essentially duplicates Table 9-B but uses tax revenue data for state governments only (that is, with local governments omitted). The first three tables are for the six fiscal years 1978-83. Table 9-D illustrates the "potential tax yield" or "average tax effort" method for comparing state plus local governments according to the degree of tax effort, with tax effort being the relationship between tax revenue and total state personal income, both for total taxes and particular tax types. Similarity of the final columns in Tables 9-B and 9-D should be noted.

Table 9-A shows the relative importance of four major parts of total general revenue of state plus local governments in Kentucky and in the average of the 50 states. The five amounts shown for Kentucky in 1978, for example, are interrelated: total general revenue (100 percent) less federal aid (26.2 percent) equals general revenue from own sources (73.8 percent); and the sum of non-tax revenue (16.8 percent) and total tax revenue (57.0 percent) equals 73.8 percent. This latter percentage is the relative size of general revenue from own sources in Kentucky in 1978. Kentucky is consistently above average in importance of federal aid and, therefore, is below average in general revenue from own sources (because the two parts must add to 100 percent). Comparing 1978 and 1983, Kentucky's reliance on federal aid increased slightly relative to the 50 states. Within general revenue from own sources, Kentucky is below average in revenue from non-tax sources (charges and miscellaneous) in the years since 1978, and this difference increased over the years, especially in 1982 and 1983. Because of its below-average relative use of non-tax revenue sources, Kentucky appears to be higher in relative reliance on tax revenue than would otherwise be the case. But Kentucky is still below average in reliance on tax revenue relative to the 50 states because of its above-average receipt of federal aid. These differences in revenue sources are illustrated in Figure 9-A.

Yields of five major tax types are shown in Table 9-B, expressed as percentages of total tax revenue. Data availability restricts the degree of detail on tax types. Comparison is of Kentucky and the 50 states in the six fiscal years 1978-83. Kentucky (state and local governments combined) has, since 1980, placed average or slightly less-than-average emphasis on the general sales tax (for example, the 5 percent sales and use tax in Kentucky) but has made greater-than-average use of income taxes throughout the six-year period. Probably the main factor influencing these percentages is the substantial

TABLE 9-A

Relative Importance of Major Revenue Sources of State and Local Governments, Kentucky and the Average of the 50 States, Fiscal Years 1978-1983

(Amounts as Percents of Total State and Local General Revenue)

	Fiscal Years											
	1978		1979		1980		1981		1982		1983	
Revenue Sources	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average
Total General Revenue	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Federal Aid	26.2	22.0	26.6	21.9	26.8	21.7	27.3	21.3	24.2	19.1	23.6	18.5
General Revenue from Own Sources	73.8	78.0	73.4	78.1	73.2	78.3	72.7	78.7	75.8	80.9	76.4	81.5
Non-Tax Revenue	16.8	16.7	17.2	18.2	19.3	19.8	18.6	20.9	18.9	22.6	19.8	23.1
Total Tax Revenue	57.0	61.3	56.2	59.9	53.8	58.4	54.1	57.7	56.7	58.4	56.6	58.5

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years.

Note: Total General Revenue, less Federal Aid, equals General Revenue from Own Sources, which is divided into Non-Tax Revenue (charges and miscellaneous) and Total Tax Revenue. Revenue other than General Revenue, such as from the Unemployment Insurance programs, is omitted.

TABLE 9-B

Relative Importance of Major Tax Types of State and Local Governments, Kentucky and the Average of the 50 States, Fiscal Years 1978-1983

(Amounts as Percents of Total State and Local General Tax Revenue)

	Fiscal Years											
	1978		1979		1980		1981		1982		1983	
General Revenue Tax Types	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average
General Sales Tax (excludes selective)	22.9	21.4	23.0	22.7	22.4	23.0	21.9	22.8	21.8	22.7	21.2	22.8
Income Taxes (Individual and Corporation)	29.2	22.7	30.1	23.9	31.2	24.8	31.8	24.8	31.0	24.7	31.1	24.4
Property Tax	18.2	34.3	17.7	31.6	18.3	30.1	18.0	30.7	17.6	30.8	18.0	31.4
Motor Vehicle Fuel and License Taxes	10.6	7.6	9.8	7.6	9.0	7.0	8.2	6.5	8.3	6.4	8.4	6.2
Severance Tax	5.5	1.3	5.9	1.4	6.5	1.9	6.7	2.6	8.2	2.9	6.7	2.6

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years.

Note: Tax Revenue other than from general taxes, such as Unemployment Insurance tax revenue, is omitted. Therefore, the columns do not sum to 100 percent.

TABLE 9-C

Relative Importance of Tax Types of State Governments (Locals Omitted), Kentucky and the Average of the 50 States, Fiscal Years 1978-1983

(Amounts as Percents of Total State General Tax Revenue)

General Revenue Tax Types	Fiscal Years											
	1978		1979		1980		1981		1982		1983	
	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average	Kentucky	50-State Average
General Sales Tax (excludes selective)	28.8	31.1	28.9	31.6	28.3	31.5	27.7	31.0	27.4	31.0	26.9	31.3
Income Taxes (Individual and Corporation)	28.7	35.2	30.0	35.8	31.0	36.8	32.0	36.8	30.8	36.7	31.5	36.7
Property Tax	8.0	2.1	7.8	2.0	8.2	2.1	7.9	2.0	7.9	1.9	7.8	1.9
Motor Vehicle Fuel and License Taxes	13.0	12.7	12.0	12.1	11.1	11.0	10.1	10.3	10.2	10.1	10.3	10.0
Severance Tax	7.0	2.2	7.4	2.3	8.3	3.1	8.5	4.3	10.3	4.8	8.5	4.3

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years.

Note: The tax types do not sum to 100 percent because several tax types are omitted.

TABLE 9-D

Actual and Potential Yield of State and Local Taxes, Kentucky and the 50 States, Fiscal Year 1983

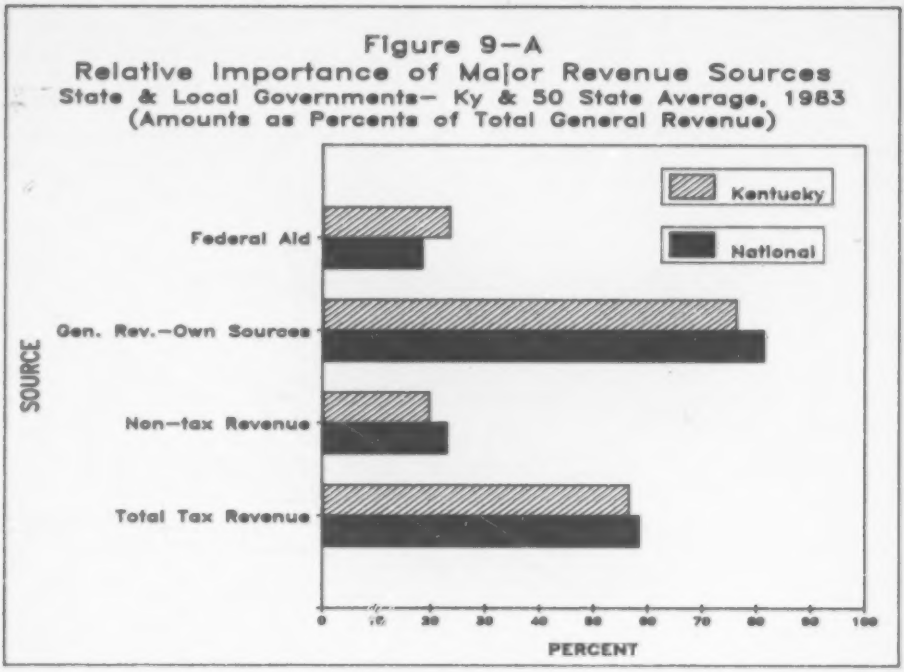
Tax Type	Kentucky: Total State and Local Tax Revenue (Millions of Dollars)				50 States: Total State and Local Tax Revenue (Millions of Dollars)	
	Actual Yield	Potential Yield[a]	Potential Less Actual	Actual as % of Potential Yield	Actual Yield	Tax Type as % of Total
General Sales (excludes selective)	$ 700.4	$ 828.4	$128.0	84.5%	$ 64,890.	22.802%
Income: Individual and Corporation	1,025.3	885.8	(139.5)	115.7	69,387.	24.382
Property	594.3	1,139.4	545.1	52.2	89,253.	31.363
Motor Vehicle Fuel and License	277.3	225.6	(51.7)	122.9	17,674.	6.210
Severance	221.4	94.4	(127.0)	234.5	7,397.	2.599
All Other Taxes[b]	480.2	459.3	(20.9)	104.6	35,984.	12.644
Total General Tax Revenue	3,298.9	3,632.9	334.0	90.8	284,585.	100.000

Source: U. S. Department of Commerce, Bureau of Economic Analysis, and Bureau of the Census, *Governmental Finances*, 1982-83; through the Kentucky Economic Information System.

Notes

[a] Potential tax yield, sometimes referred to as average-effort tax yield, is the total Kentucky tax revenue that would be produced *if* total tax yield were the same percentage of total personal income in Kentucky as is true for the total of all state and local governments in the nation. Total state and local tax yield in the nation in fiscal year 1983 was $284,585 million, which was 10.408643 percent of total U.S. personal income of $2,734,122 million. Kentucky personal income of $34,903 million, multiplied by 10.408643 percent, gives potential yield of $3,632.9 million for fiscal year 1983. Potential yield for each tax type is computed by distributing the total potential yield among the various tax types in the same percentages shown for the total tax yield of state and local governments in the 50 states. For example, property tax yield was 31.363 percent of total tax yield nationally. The Kentucky potential yield of $3,632.9 million, multiplied by 31.363 percent, gives $1,139.4 million as the potential yield for property tax in Kentucky. Actual property tax yield in Kentucky was only $594.3 million in 1983, suggesting unused property tax potential of $545.1 million. Also, actual property tax yield was only 52.2 percent of potential yield in Kentucky in that year. Because some Kentucky tax types have actual yields larger than potential yields, the total of unused tax potential ($334.0 million) is the sum of the positive and negative amounts for the various tax types. Total unused potential yield is also the total potential yield less the actual yield ($3,632.9 − $3,298.9 = $334.0 million).

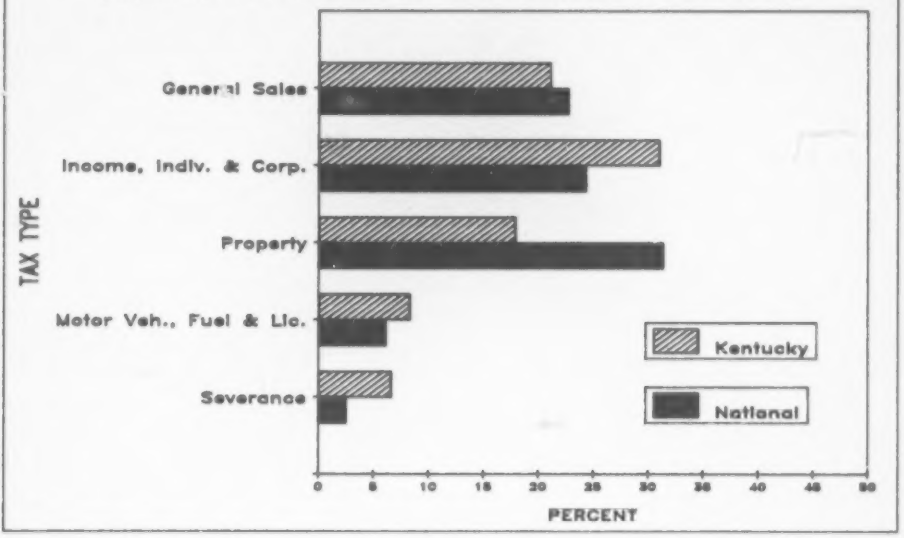
[b] Main components of the "All Other Taxes" category are such selective sales and license taxes as on cigarettes, alcoholic beverages, insurance premiums, and public utility services.



use by local governments in Kentucky of a form of income tax (the Occuption License or "payroll" tax) and the absence of any local general sales tax in Kentucky. In many other states, the general sales tax is used by local governments as well as by state governments. When the percentages for sales and income taxes are combined, Kentucky is above average compared with the 50 states. However, Kentucky's combined reliance on sales and income taxes has remained stable over the six years while the 50 states as a group have been increasing their reliance on these two taxes combined.

Property taxes are a source that is used to a lesser degree in Kentucky than in the 50 states. In 1978, Kentucky received 18.2 percent of total state and local tax revenue from property taxes while this amount was 34.3 percent for the 50 states. This disparity was only slightly less in 1983. Kentucky's below-average reliance on property tax is offset by its above average use of motor vehicle fuel and license taxes, severance taxes, and sales and income taxes. The severance tax on coal and other minerals is a much more important tax source in Kentucky than in the 50 states, although the severance tax has the smallest importance of the five tax types shown for Kentucky. Some reduction occurred between 1978 and 1983 in Kentucky's above-average use of the severance tax, with Kentucky's reliance being 4.23 times the average in 1978 (5.5 divided by 1.3) but only 2.58 times greater in 1983. These differences between Kentucky and the 50 states in use of tax types are illustrated in Figure 9-B.

Figure 9–B
Relative Importance of Major Tax Types
State & Local Governments– Ky & 50 State Average, 1983
(Amounts as Percents of Total General Tax Revenue)



By omitting local governments from the comparisons, as shown in Table 9-C, the relative use of the five tax types differs from that shown for state plus local governments. Because throughout the nation the motor vehicle fuel and license taxes and severance taxes are almost entirely state government taxes, the major changes in the comparisons arise because of the differences between state and local governments in their use of general sales, income, and property taxes. A spectacular change is shown for property taxes. Whereas Kentucky was shown in Table 9-B to be below the 50-state average in use of property tax by state plus local governments, the omission of local government in Table 9-C caused Kentucky to be shown as being well above average in use by state governments only. This change results because most state governments make little if any use of property taxes, having abandoned them during the 1930s depression. Kentucky is unusual among the states in receiving considerable state government tax revenue from property. Kentucky's above-average state government use of property tax increased after 1976 when a local school property tax was redefined to become a state government tax. The changes in relative use of the general sales tax and the income taxes, in Table 9-C as compared with Table 9-B, results from the differences among states in local government use of these two tax types. As explained above, Kentucky local governments do not use the general sales tax but make substantial use of a form of income tax. In many other states, however, the reverse is true.

Also, by omitting local governments from Table 9-C, Kentucky is shown to have different positions relative to the 50-state average in general sales tax and in income taxes, as compared with the state-plus-local government data in the previous table. Whereas Kentucky in Table 9-B was close to the 50-state average in reliance on general sales tax and was above average in reliance on income taxes, the state-government-only comparisons in Table 9-C show Kentucky to be below the 50-state average in reliance on both general sales tax and income taxes.

The comparisons shown in Table 9-C for state government only illustrate the potentially misleading results that are obtained when interstate revenue comparisons are made for state governments only, or local governments only, instead of for state plus local governments. The shares of total tax revenue collected by state governments, compared with local governments, differ widely among the states. A state that is below average in state government taxes, relative to other states, usually is above average in local government taxes. And because use of particular tax types also differs among levels of government and among the 50 states, comparisons based on state governments only or local governments only are very likely to give misleading results. A main reason for presenting Table 9-C in this report is to call attention to these problems.

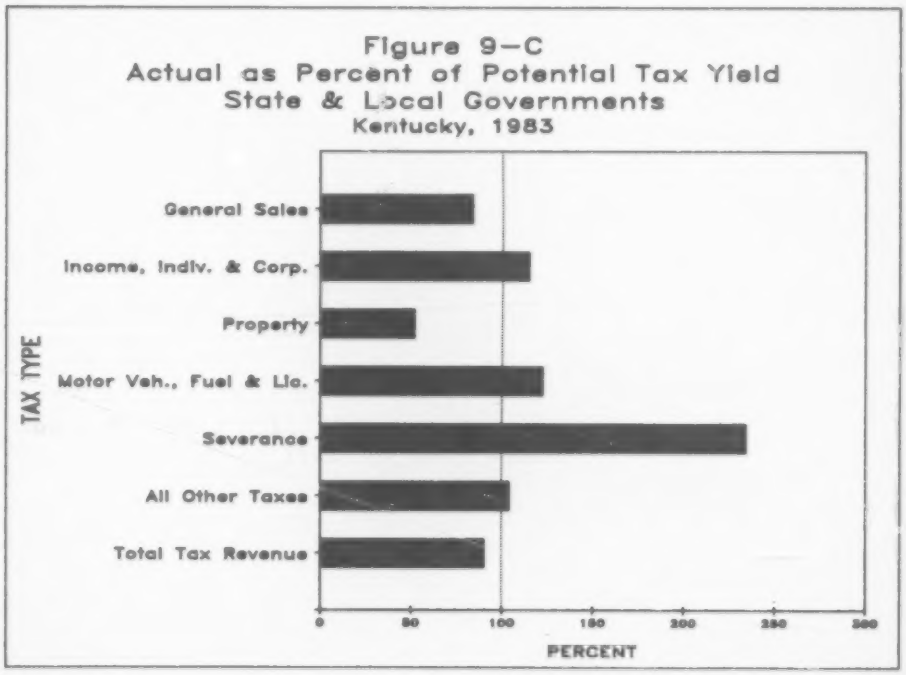
The potential-yield or average-effort method for interstate tax comparison was originated by Professors James W. Martin and Kenneth E. Quindry at the University of Kentucky in 1960, and for many years it was used in an annual publication of the Southern Regional Education Board. In recent years, however, the publication has been discontinued. Therefore, a similar but abbreviated method was used to develop the results presented in Table 9-D, based on data for fiscal year 1983. Simply described, 1983 total tax revenue of all state and local governments in the United States ($284,585 million) is expressed as a percentage of 1983 total U.S. personal income ($2,734,122 million) for a percentage of 10.408643. This percentage is multiplied by 1983 total Kentucky personal income ($34,903 million) to suggest $3,633 million as Kentucky's potential tax yield for 1983. By potential yield is meant the amount of total tax revenue that would be the same percentage of total personal income in Kentucky as found nationally.

Comparing Kentucky's potential yield with its 1983 actual yield ($3,298.9 million) indicates $334.0 million as the "unused" potential yield. This implies that an additional $334 million of tax revenue could have been raised in Kentucky without its total tax effort being above the national average for state plus local governments. Detail among tax types is obtained by allocating Kentucky's total potential yield among tax types in the same percentage pattern found in the 50 states for total actual yield. Finally, the under- or over-use of particular tax types is shown by subtracting actual from potential yields and also by expressing actual yields as percentages of

potential yields. The results of these percentage computations are illustrated in Figure 9-C.

The advantages of using the potential-tax-yield method to analyze tax revenues are: first, it is simple in concept and easy to compute; second, the relative over- or under-emphasis on tax types is indicated along with suggestion as to dollar amounts; and third, the concept of tax effort is related to personal income levels among the states, allowing a poorer state to be shown to make an average effort with fewer dollars of tax revenue per average person than a richer state. A major defect of the method (especially in the modified form used here) is its reliance on personal income as the common denominator against which tax types are compared, a problem explained below relative to property taxation.

The results in Table 9-D clearly show Kentucky to be below its potential in total state plus local tax effort, being 90.8 percent of average effort in 1983. (As previously shown in Table 9-B, Kentucky's state and local governments combined are below the 50-state average in reliance on the general sales tax and very much below the average in reliance on property taxes.) Offsetting these lower efforts are Kentucky's above-potential use of the income taxes, the moter vehicle fuel and license taxes, and especially, the severance tax. Kentucky's much below-average use of property taxes probably is a misstatement because the computations use a common denominator based wholly on personal income (which does not include corporation income), whereas much of property tax yields come from business property.



Insofar as Kentucky is below average in the ratio of business property to nonbusiness property, the absence of an adjustment for these differences probably causes an understatement of the degree of use of property taxation in Kentucky.

10. Recent Revenue Changes of State and Local Governments

Shortage of state and local government tax revenue has been a much publicized problem in Kentucky in the 1980s, causing reductions in already-budgeted expenditures and austerity in expenditure programs generally. What are adequate levels of government expenditures, relative to levels of private expenditures, is a profound and basic question that cannot be answered merely by statistical comparisons. But some suggestion of the degree of shortness in governmental revenue can be found by examining Kentucky's revenue levels over a period of years and also by comparing Kentucky values with those of the group of 50 states.

The most widely used method for comparisons of this type is the taxes-per-capita method, whereby total general tax revenue collected in a year by the state and local governments in one state is divided by the total state population to give "tax revenue per person on the average." This is commonly referred to as "taxes per capita." A similar amount can be computed for the total of all state and local governments in the nation. By expressing the Kentucky value as a percentage of the national value, Kentucky can be shown to be above or below the national average in taxes per capita. Comparison over several years can show whether Kentucky is moving closer to or farther from the national average. This type of comparison cannot, of course, shows that the level of government services is adequate or inadequate in Kentucky or the other states, but it can show whether Kentucky is below or above the 50-state average and whether its relative position is improving or worsening.

Results of these types of comparisons are presented in the left part of Table 10-A, for the 14-year period 1970-83. Kentucky was 70.4 percent of the national average in taxes per capita in 1970, fell a bit lower in the next several years, but rose to 74.2 percent in 1975. After a slight falling off for several years, Kentucky reached its all time high of 78.5 percent in 1979. Kentucky's relative level of taxes per capita declined generally after 1979 and reached 73.0 percent of the national average in 1983. The comparisons clearly show the relative tax revenue decline in Kentucky in recent years. While dollar amounts of tax revenue per capita have continued to increase, the rate of increase has been less in Kentucky than nationally.

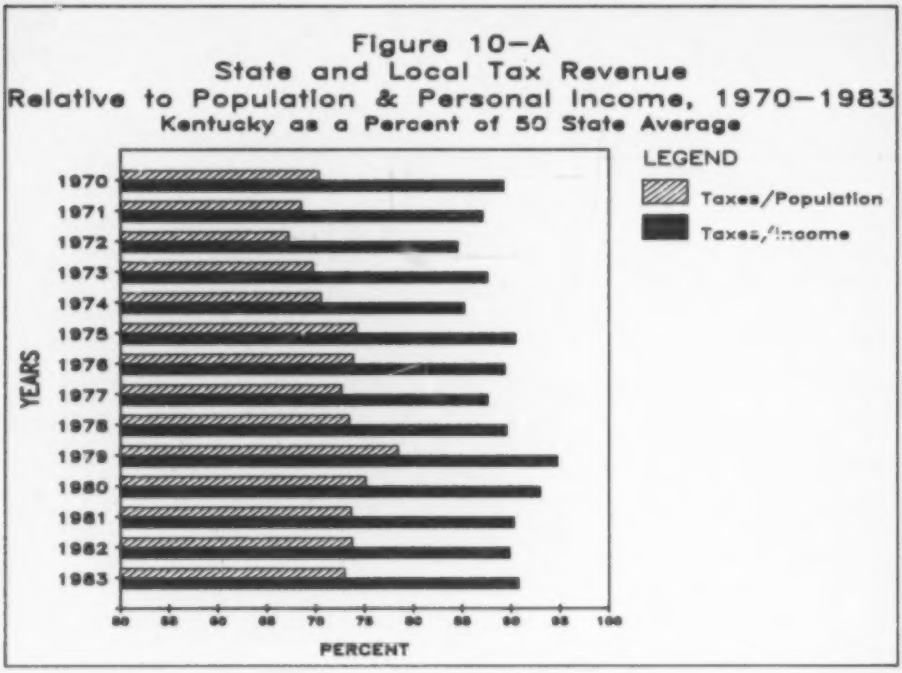
Another widely used method for comparing tax levels is the "taxes as a percent of personal income" method, whereby total state and local tax revenue is expressed as a percentage of total personal income for a state. This percentage can be expressed as a percentage of the similar value for the total of 50 states to show whether Kentucky is above or below the national average in taxes relative to income, and comparison over the years can show how Kentucky's position is changing relative to the national average.

TABLE 10-A
State and Local Tax Revenue Relative to Population and Personal Income, Kentucky and the Average of the 50 States, Fiscal Years 1970-1983

Fiscal Year	State and Local Tax Revenue: Dollars Per Capita			State and Local Tax Revenue: Percent of Personal Income		
	Kentucky	50-State Average	Kentucky as a % of 50-State Average	Kentucky	50-State Average	Kentucky as a % of 50-State Average
1970	$299	$ 425	70.4%	9.7%	10.8%	89.3%
1971	315	459	68.6	9.6	11.0	87.1
1972	350	520	67.3	9.7	11.5	84.6
1973	400	573	69.8	10.0	11.4	87.6
1974	433	613	70.6	9.6	11.3	85.3
1975	487	656	74.2	10.2	11.2	90.5
1976	533	721	73.9	10.1	11.3	89.4
1977	582	800	72.7	10.0	11.5	87.6
1978	641	872	73.5	10.1	11.2	89.6
1979	714	915	78.5	10.0	10.6	94.8
1980	740	984	75.2	9.6	10.4	93.0
1981	785	1065	73.7	9.1	10.1	90.3
1982	848	1149	73.8	9.3	10.3	89.9
1983	888	1216	73.0	9.4	10.4	90.8

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years; through the Kentucky Economic Information System.

Computations using this method are presented in the right part of Table 10-A, for the 14-year period 1970-83. These results differ from those of the taxes-per-capita method in two important respects. First, Kentucky is not as far below the national average when the comparison is based on personal income because Kentucky is below average in per capita personal income among the 50 states, as shown in Table 3-A. By this measure, Kentucky taxes were 89.3 percent of the national average in 1970 and 90.8 percent in 1983, which amounts are 15 to 20 percentage points above the comparable values for taxes per capita. Second, Kentucky's relative position since 1978 did not decline at the same rate according to the two measures. The decline of the taxes per capita value from 78.5 to 73.0 percent of the national average is a decline of 7 percent (5.5 divided by 78.5) whereas the decline in taxes as a percent of personal income from 94.8 to 90.8 percent is a decline of only 4.2 percent. Also, the changes from 1982 to 1983 were in opposite directions for the two measures. Kentucky's relative position in taxes as a percent of personal income increased from 89.9 to 90.8 percent. These unusual differences are caused by changes in per capita personal income in Kentucky relative to the nation. Because Kentucky's per capita personal income declined relative to the nation from 1982 to 1983 (see Table 3-A), its lower relative position in taxes per capita appeared as a higher relative position in taxes as a percent of personal income. These two series are illustrated in Figure 10-A. The lessons to be learned from the above comparisons are: a meaningful comparison of tax levels and changes cannot be based on only one measurement method; an introduction of personal income into the computations can hide a relative revenue reduction, as in 1982-83; and methods



in addition to those shown in Table 10-A are needed if Kentucky's tax revenue situation is to be analyzed adequately.

Growth rates for the several sources of state and local government revenue are presented in Table 10-B for the six fiscal years 1978-83 for Kentucky and the average of the 50 states. All amounts are expressed as percentages of the 1978 values to allow easy comparison of degree of change. The revenue types shown in Table 10-B are the same as shown in Tables 9-A and 9-B, but instead of values being percentages of totals they are shown as percentages of the first year amounts. The emphasis in Table 10-B is on changes since 1978 in Kentucky as compared with the nation, and this emphasis is chosen because the problem of concern is Kentucky's relative revenue decline in recent years.

The picture of state and local government revenue decline in Kentucky relative to the nation, as shown in Table 10-B, is nearly complete. The Kentucky index numbers in 1983 are below the national numbers in all cases but two: the values are identical for federal aid, and Kentucky's property tax index number exceeds the national index by 7 percentage points. The excesses of national values over Kentucky values in 1983, in percentage points, are: total general revenue, 11 points; general revenue from own sources, 12 points; non-tax revenue, 44 points; total tax revenue, 5 points; general sales tax, 24 points; income taxes, 6 points; motor vehicle fuel and license taxes, 7 points; and severance tax, 124 points.

TABLE 10-B

Growth in General Revenue of State and Local Governments, by Sources, Kentucky and the Average of the 50 States, Fiscal Years 1978-1983
(Index Numbers: 1978 = 100)

Revenue Sources		Fiscal Years					
		1978	1979	1980	1981	1982	1983
Total General Revenue	Kentucky	100	114	124	131	135	143
	50-State Average	100	109	121	134	144	154
Federal Aid	Kentucky	100	115	127	137	124	129
	50-State Average	100	108	119	130	125	129
General Revenue from Own Sources	Kentucky	100	113	123	129	139	149
	50-State Average	100	109	121	135	150	161
Non-tax Revenue	Kentucky	100	117	143	145	152	169
	50-State Average	100	119	144	168	195	213
Total Tax Revenue	Kentucky	100	112	117	125	135	142
	50-State Average	100	106	115	126	138	147
General Sales Tax (excludes selective)	Kentucky	100	113	114	118	129	132
	50-State Average	100	112	124	134	146	156
Income Taxes (Individual and Corporation)	Kentucky	100	116	125	136	143	152
	50-State Average	100	112	126	138	150	158
Property Taxes	Kentucky	100	109	118	123	130	141
	50-State Average	100	98	103	113	123	134
Motor Vehicle Fuel and License Taxes	Kentucky	100	104	100	96	106	113
	50-State Average	100	106	105	108	115	120
Severance Taxes	Kentucky	100	120	138	152	200	173
	50-State Average	100	114	169	256	314	297

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years.

Note: Total General Revenue, less Federal Aid, equals General Revenue from Own Sources, which is divided into Non-tax Revenue (charges and miscellaneous) and Total Tax Revenue. Revenue other than General Revenue, such as from the Unemployment Insurance programs, is omitted, as are several low-yield tax types.

The years of the onset of the relative revenue decline is shown by the index numbers for total general revenue, wherein the Kentucky values exceeded the national values in 1979 and 1980 but fell below in 1981 and later years. A similar pattern is shown for general revenue from own sources and for total tax revenue, where the changes also occurred between 1980 and 1981. Kentucky's greater decline relative to the average of all states in total general revenue than in total tax revenue is explained by Kentucky's smaller growth rate in non-tax revenue (charges and miscellaneous), where the Kentucky index numbers were nearly up to the national values in 1979 and 1980 but fell much below in the period 1981-83. Nevertheless, growth at less than the national average occurred in four of the five tax types shown, being on-

ly slight relative declines for income tax and motor vehicle taxes, substantial relative decline in general sales tax, and very large relative decline in severance tax. The year when the Kentucky index numbers fell below the national numbers was 1980 for general sales, income, and severance taxes, while the Kentucky values were lower after 1978 in all years shown for the motor vehicle taxes. Kentucky's index number for federal aid declined relative to the national index values after 1980, and this is especially important because, as shown in Table 9-A, Kentucky received a much-larger-than-average share of its total general revenue from federal aid. Thus, the period of relative revenue decline for Kentucky occurred in nearly all series during the three years 1981-83 and in many series during the year 1980.

Local government revenue is omitted from the tax revenue comparisons in Table 10-C, causing some slight differences in results from the previous table. But essentially the same clear picture is shown of relative revenue decline for Kentucky state government in recent years. Kentucky's total (state-only) tax revenue had a 1983 index number 10 percentage points below the national value (151 less 141), which is twice the 5 point difference for total tax revenue of state and local governments combined (147 less 142). Years of onset of the relative declines in state tax revenue were 1980 for general sales, income, property, and severance taxes as well as for total tax revenue. The index numbers for motor vehicle taxes were below average after 1978 for Kentucky in all years shown. The difference between Tables 10-B and 10-C in property taxes, wherein Kentucky grew more than the

TABLE 10-C

Growth in Tax Revenue of State Governments by Sources (Locals Omitted), Kentucky and the Average of the 50 States, Fiscal Years 1978-1983
(Index Numbers: 1978 = 100)

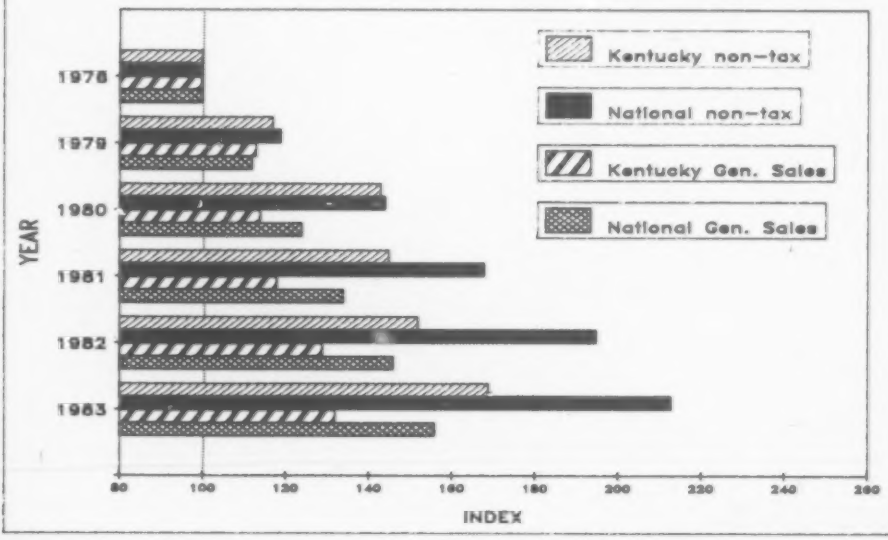
		Fiscal Years					
Tax Types		**1978**	**1979**	**1980**	**1981**	**1982**	**1983**
Total General Tax Revenue	Kentucky	100	113	116	124	135	141
	50-State Average	100	110	121	132	144	151
General Sales Tax	Kentucky	100	113	114	119	128	132
(excludes selective)	50-State Average	100	112	122	132	143	152
Income Taxes	Kentucky	100	117	126	138	145	155
(Individual and Corporation)	50-State Average	100	112	127	138	150	158
Property Taxes	Kentucky	100	109	120	122	133	138
	50-State Average	100	105	122	125	132	139
Motor Vehicle	Kentucky	100	104	100	97	106	113
Fuel and License Taxes	50-State Average	100	106	105	108	115	119
Severance Taxes	Kentucky	100	120	138	152	200	173
	50-State Average	100	114	169	256	314	297

Source: U.S. Department of Commerce, Bureau of the Census, *Governmental Finances*, various years.

national average in state and local property taxes but less than the national average in state only property taxes, indicates that the national movement toward reduced general emphasis on property taxation was stronger in other states than in Kentucky. Because most state governments make little use of the property tax while Kentucky is a larger user of that tax at the state level, the reduced national emphasis on property taxation is mainly shown in Table 10-B. When state and local governments are combined, Kentucky is shown to be below the national average in degree of reduced emphasis on property taxation. That is, Kentucky's index numbers were above the national average in Table 10-B for property taxes, not because Kentucky increased its use of property taxes but because other states reduced their emphasis on property taxes more than Kentucky reduced its emphasis.

Selected for illustration in Figure 10-B are the Kentucky and national index numbers for non-tax revenue and general sales taxes of state and local governments.

Figure 10–B
Growth In Non–tax & Gen. Sales Tax Revenue
State & Local Governments– Ky & 50 State Average
1978–1983 (Index numbers: 1978=100)



11. Coal Industry Trends and Recent Changes

Three economic series for coal mining are used to describe the coal industry: production, employment, and income of wage and salary workers. Annual production of coal is shown in Table 11-A for Kentucky and its two major regions and for the nation and its three major regions, for 1960, 1965, and 1970-83. All amounts are expressed as percentages of the 1970 amounts. Kentucky's Eastern coalfields are part of the nation's Appalachian region while Kentucky's Western coalfields are part of the nation's Interior region. The nation's Western region contains such states as Wyoming and Montana which in recent years have developed into major coal producers. Note that index numbers based on 1970 allow easy comparison of *growth* rates but do not show the *size* of total coal production in one region compared with others. Relative size data are shown in Table 11-B.

The most important change shown in Table 11-A is the very large increase in coal production in the nation's Western region. The other six series

TABLE 11-A
Regional Production of Coal, Kentucky and United States, 1960, 1965 and 1970-1983
(Index Numbers: 1970 = 100)

	Kentucky Regions			United States Regions			
Year	Total	Eastern	Western	Total	Appalachian	Interior	Western
1960	53.3	50.0	57.9	68.9	72.7	65.9	41.8
1965	68.4	64.2	74.2	84.9	89.8	79.3	57.8
1970	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971	95.3	98.7	90.6	91.6	89.5	90.5	120.4
1972	96.7	95.0	99.1	98.7	92.2	104.5	144.0
1973	101.9	102.0	101.7	98.1	89.6	102.6	172.2
1974	109.5	117.7	98.2	100.1	90.2	99.3	214.8
1975	114.6	120.4	106.7	107.5	94.1	108.1	255.6
1976	114.9	125.7	100.1	112.6	96.8	107.5	314.6
1977	116.7	129.6	99.1	114.7	99.6	95.1	380.6
1978	108.3	132.7	74.7	110.3	93.5	84.9	424.0
1979	119.6	147.1	81.8	129.0	107.5	98.6	519.7
1980	119.8	150.6	77.6	136.9	110.9	102.5	598.9
1981	125.7	162.6	75.1	135.2	107.5	96.5	637.2
1982	119.9	153.4	73.9	138.1	108.2	103.3	645.1
1983	104.7	131.9	67.4	128.8	95.5	100.7	641.0

Source: U.S Department of the Interior, Bureau of Mines and Minerals, *Minerals Yearbook*, issues for 1960 to 1975; U.S. Department of Energy, Energy Information Administration, *Coal Production* (under several titles), issues for 1976 to 1983; Kentucky data are through the Kentucky Economic Information System.

Note: Traditionally, coal production data reported bituminous (including subbituminous) and lignite coal production. Beginning with U.S. data for 1979, production figures reported above also include anthracite. There is no lignite nor anthracite production in Kentucky. Also, beginning with U.S. and Kentucky data for 1978, total coal production excludes production from mines producing less than 10,000 short tons of coal during the year.

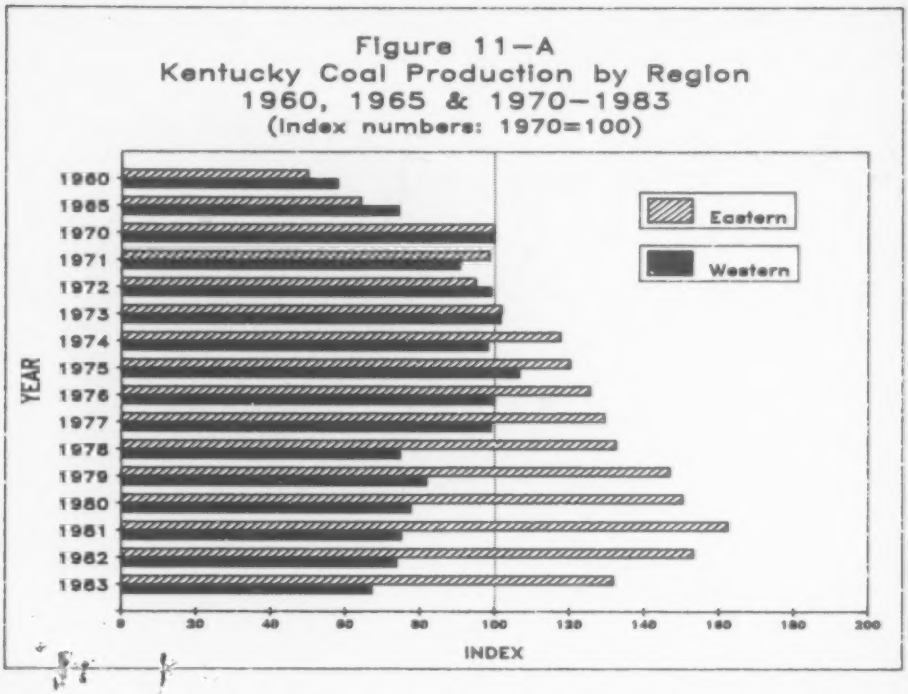
TABLE 11-B
Distribution of U.S. Coal Production, by Coal-Producing Regions and States, 1970, 1981-1983

Coal Producing Region and State	1970 % of U.S. Total Production	1981 % of U.S. Total Production	1982 % of U.S. Total Production	1983 % of U.S. Total Production
U.S. Total	100.0%	100.0%	100.0%	100.0%
Appalachian Total	69.3	52.2	51.4	48.7
Alabama	3.4	3.0	3.2	3.0
Kentucky, Eastern	12.0	14.2	13.1	12.0
Maryland	0.3	0.5	0.5	0.4
Ohio	9.2	4.4	4.4	4.3
Pennsylvania	13.3	10.2	9.4	8.9
Tennessee	1.4	1.2	0.9	0.8
Virginia	5.8	5.0	4.7	4.4
West Virginia	23.9	13.8	15.4	14.8
Interior Total	24.9	20.4	21.4	22.3
Illinois	10.8	6.4	7.2	7.3
Indiana	3.7	3.6	3.8	4.1
Iowa	0.2	0.1	*	*
Kansas	0.3	0.2	0.2	0.2
Kentucky, Western	8.8	4.8	4.7	4.6
Missouri	0.7	0.6	0.6	0.6
Oklahoma	0.4	0.7	0.6	0.5
Texas	---	4.0	4.2	5.0
Western Total	5.8	27.4	27.2	29.0
Alaska	0.1	0.1	0.1	0.1
Arizona	*	1.4	1.5	1.5
Colorado	1.0	2.4	2.2	2.2
Montana	0.6	4.1	3.3	3.7
New Mexico	1.2	2.3	2.4	2.6
North Dakota	0.9	2.2	2.1	2.5
Utah	0.8	1.7	2.0	1.5
Washington	*	0.6	0.5	0.5
Wyoming	1.2	12.6	13.2	14.4

* Less than 0.1 percent.

Source: Same as Table 11-A.
Note: Amounts may not sum to 100 percent because of rounding and omission of states producing less than 0.1 percent of the total.

show modest growth and even decline since 1970, and all of the series decreased in the 1980s. Within Kentucky, the Eastern region exceeded the national growth in total production up to 1981 but declined in 1982 and 1983 both absolutely and relative to national production. But in Kentucky's Western region, production has been at less than its 1970 level in all of the years 1977-83, with 1982 and 1983 showing the lowest index numbers since before 1965. Weaknesses are shown also for the nation's Appalachian and Interior regions over much of the period shown. Thus, the bright spots in the coal industry have been Kentucky's Eastern region, and especially the nation's Western region, over most of the period shown, and for the period 1979-82 in the nation's Appalachian region. To highlight the differences in production changes in Kentucky, the Eastern and Western Kentucky production series are plotted in Figure 11-A.



Relative shares of total national coal production are shown in Table 11-B for 1970 and 1981-83. Data are in the form of percentages of the national totals, for the nation's three regions and for particular states in those regions. Between 1970 and 1983, the nation's Western region experienced large growth, increasing from 5.8 percent to 29 percent of the national totals. Because the Interior region declined in relative share only from 24.9 percent to 22.3 percent, most of the Western region's relative growth over the 1970-83 period was at the expense of the Appalachian region, which declined in relative share from 69.3 percent in 1970 to 48.7 percent in 1983.

Total Kentucky coal production declined from 20.8 percent of the national total in 1970 to 16.6 percent in 1983. Kentucky's coalfields are included in two national regions—the Appalachian and the Interior regions—and performance between 1970 and 1983 differed greatly in the two Kentucky regions. The Eastern region in Kentucky accounted for 12 percent of national production in both 1970 and 1983 and for slightly more in 1981 and 1982. But Kentucky's Western region declined from 8.8 percent of the national total in 1970 to 4.6 percent in 1983. This degree of decline for Kentucky's Western region was much greater than the decline in the nation's Interior region, of which the Kentucky Western region is a part.

Total amounts for Kentucky and for the nation are presented in Table 11-C for three coal industry series: production, mining employment, and wage and salary income. Annual amounts are shown for the 14-year period 1970-83, with all amounts shown as percentages of the 1970 amounts.

TABLE 11-C

Bituminous and Lignite Coal Mining Production, Employment, and Wage and Salary Income, Kentucky and the United States, 1970-1983 (Index Numbers: 1970 = 100)

	Coal Production		Coal Mining Employment		Coal Mining Wage and Salary Income	
Year	Kentucky	United States	Kentucky	United States	Kentucky	United States
1970	100.0	100.0	100.0	100.0	100.0	100.0
1971	95.3	91.6	108.7	100.6	114.2	106.5
1972	96.7	98.7	116.1	112.5	132.6	129.9
1973	101.9	98.1	117.4	113.2	151.3	140.7
1974	109.5	100.1	151.5	126.1	221.1	172.9
1975	114.6	107.5	182.4	149.9	312.9	243.2
1976	114.9	112.6	183.9	158.6	336.6	277.4
1977	116.7	114.7	191.4	159.0	394.4	312.7
1978	108.3	110.3	206.8	147.9	440.3	337.6
1979	119.6	128.8	216.5	183.1	516.4	407.4
1980	119.8	136.6	208.4	173.9	547.7	439.8
1981	125.7	135.7	208.9	158.4	609.5	460.8
1982	119.9	138.2	206.2	167.0	621.5	498.5
1983	104.7	129.0	159.0	137.4	506.5	421.1

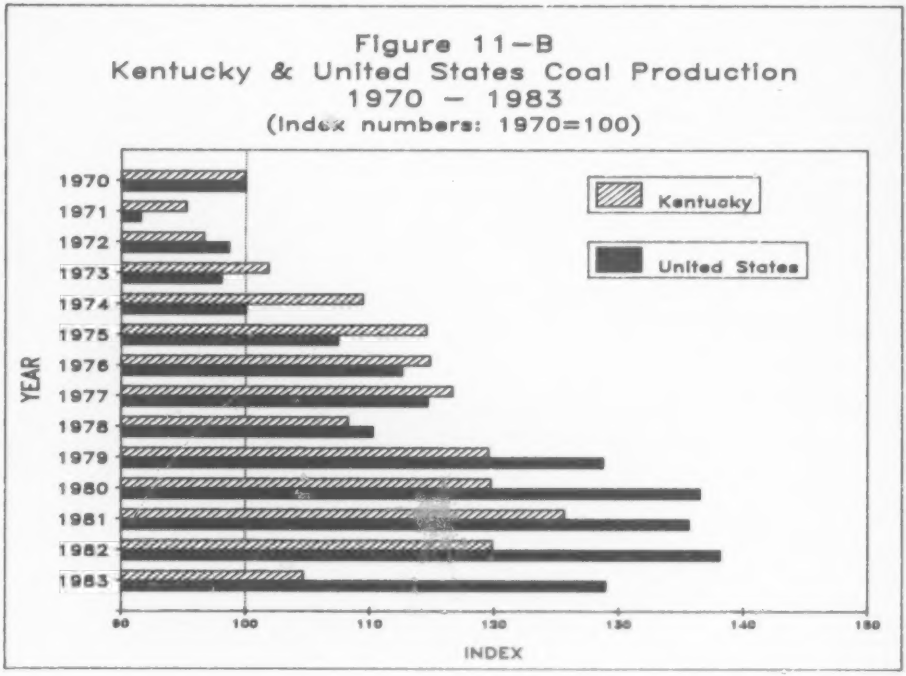
Source: Sources for bituminous and lignite coal production are the souces given for Table 11-A; U.S. employment data are from the Bureau of Labor Statistics (BLS), U.S. Department of Labor, *Supplement to Employment and Earnings: Revised Establishment Data*, June 1983, and phone call to BLS; Kentucky employment data are from the Kentucky Cabinet for Human Resources; U.S. and Kentucky income data are from the Bureau of Economic Analysis, U.S. Department of Commerce; all Kentucky data are through the Kentucky Economic Information System.

Note: As used in this table, coal refers to bituminous coal and lignite, excluding anthracite.

Because of nationwide inflation, the wage and salary income series had large degrees of growth; but even with this exaggeration, Kentucky's larger-than-national rate of growth is apparent. For example, the largest wage and salary income index number for Kentucky is 621.5 and only 498.5 for the nation, both in 1982. But Kentucky suffered a larger decline in 1983 than did the nation (a 115 point compared to a 77.4 point decline). The production and employment series also grew over the years but to much smaller degrees than for wage and salary income mainly because of the absence of inflation effects.

Kentucky's production increases are less than the national increases over the period, and its performance since 1981 has been especially weak compared with national production. The employment series mirror changes in the production series somewhat, but Kentucky's employment growth since 1970 is greater than for the nation and more than would be expected in view of the Kentucky and national production increases. Kentucky's much faster growth performance in employment probably is caused by the greater importance of underground mining in Kentucky than in the nation, and the

larger labor requirement for underground mining than for surface mining, per ton of coal. To highlight the differences between the production performances of Kentucky and the nation, these series are illustrated by plots in Figure 11-B.



12. Agricultural Income Sources and Recent Changes

Describing and analyzing the farm sectors of the Kentucky and national economies present problems of statistical definition and measurement different from those encountered in the nonfarm sectors. The result is that published statistical information available for the farm sector differs from the usual statistical series, such as the income, employment, and production series used in earlier sections of this report and which mainly concerned the nonfarm economic sectors. For example, number of persons employed and amounts of earnings are less useful statistics for agriculture because of agriculture's much greater reliance on nonwage workers (especially family members) as labor sources. Also, it is difficult to measure net farm income in a manner comparable to that for nonfarm businesses because of the greater reliance on non paid (family) labor. Moreover, the agricultural industry is less subject to governmental regulation than are other industries; therefore, comparable economic statistics, often the by-product of regulation, are less available in agriculture. Unemployment of workers is a relatively meaningless concept for farm family members relative to work on the family farm, and total income of farm families is heavily influenced by jobs in nonfarm employment. In addition, income from federal price support programs is factored into the measurement of farm net income annually. Finally, an important part of farm income in Kentucky is from selling tobacco and since in each year tobacco is marketed in December and January, there is some tendency for erratic changes to be recorded in annual farm income data.

Seven types of income series related to agriculture are presented in Table 12-A for Kentucky and the nation for the 13-year period 1970-82. All amounts are expressed as percentages of the 1970 amounts to allow easy comparison of series that differ greatly in magnitude of the original values. Because the seven agricultural income series are different from the usual economic series, they are briefly described. Total farm labor and proprietors' income is essentially farm wages and perquisites, other labor income, and the net income of the farm proprietors who both work on the farm and earn a return on their investment. Total net farm income (not shown in Table 12-A) is a component of total farm labor and proprietors' income and is farm proprietors' realized net income less net income of corporate farms and includes the total value of inventory change. Important segments of farm proprietors' income shown in Table 12-A are: realized net income (the sum of cash receipts and other income less farm production expenditures); cash receipts (total, and from livestock and crops); total other income (such as government payments, imputed interest and rent); and farm production expenses. Note that in interpreting economic time series related to monetary values that are not corrected for inflation, exaggerated growth is caused by the underlying push from inflation. Consequently, slow growth or leveling

TABLE 12-A

Farm Income and Expenditures, Kentucky and United States, 1970-1982
(Index Numbers: 1970 = 100)

Type of Income or Expense	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
							Kentucky						
Farm Labor and Proprietors' Income	100	104	129	152	179	135	162	184	192	226	186	279	247
Realized Net Income	100	83	115	142	135	125	143	165	228	193	245	209	209
Cash Receipts	100	100	116	142	158	154	178	203	246	249	300	305	313
Livestock	100	102	115	143	112	130	143	172	229	229	267	265	249
Crops	100	98	119	142	221	188	227	246	270	277	345	361	401
Other Income	100	92	107	112	122	136	146	164	183	215	213	230	246
Farm Production Expenses	100	106	118	147	158	165	180	195	221	263	281	298	306
							United States						
Farm Labor and Proprietors' Income	100	104	125	206	175	167	142	145	190	221	172	220	185
Realized Net Income	100	96	126	212	199	156	157	132	189	195	197	170	174
Cash Receipts	100	104	121	171	179	171	183	186	219	258	273	276	280
Livestock	100	103	120	155	138	143	153	157	196	231	227	230	233
Crops	100	106	122	196	244	215	232	232	256	301	347	348	354
Other Income	100	96	111	105	93	109	117	142	170	174	186	214	243
Farm Production Expenses	100	108	115	135	161	165	188	213	240	269	306	335	349

Source: U.S. Department of Commerce, Bureau of Economic Analysis, through the Kentucky Economic Information System.

Note: Farm Labor and Proprietors' Income is the sum of net farm income (realized net income less net income of corporate farms and including the total value of inventory change); farm wages and perquisites; and farm other labor income. Realized Net Income is the sum of total cash receipts and other farm income less total farm production expenses. This table highlights only certain segments of the total Farm Labor and Proprietors' Income. Data for 1978-82 in Tables 3-D and 12-A are not from the same estimation cycle; the data for indexes of total farm labor and proprietors' income shown in Table 3-D were released by the Bureau of Economic Analysis in September 1984. Those in this table were released in April 1984 and are used here because they are internally consistent with the indexes shown for the components of farm income and expenditures.

of an unadjusted income series should be interpreted as being similar to actual reduction in a nonmoney series such as employment or production.

Comparing only the first and last years shown in Table 12-A (1970 and 1982), Kentucky appears to have outperformed the nation in agriculture, with most of the Kentucky index numbers being favorable relative to the national index numbers. Mostly of interest, however, are recent changes, and because some slight suggestion of decline is shown in the 1982 data, it is unfortunate that 1982 is the most recent year for which *complete* information is available. Earlier in this report, however, reductions in agricultral performance were shown in Tables 3-C and 3-D. These series are reproduced in Table 12-B. In Kentucky, labor and proprietors' income in agriculture declined as a source of total personal income from 3.8 percent in 1981 to 3.4 percent in 1982 and 1.6 percent in 1983. The degree of decline for Kentucky in this period was slightly greater than for the nation, perhaps suggesting that the 1983 drought had greater impact in Kentucky than in the nation. Agricultural labor and proprietors' income is also shown as an index with the 1970 value equal to 100 percent. The Kentucky index numbers peaked at 279.2 percent in 1981, declined slightly to 262.1 percent in 1982, and declined greatly to 132.7 percent in 1983, for a total decline between 1981 and 1983 of 146.5 percentage points. For the nation, the index numbers peaked at 214.0 percent in 1981 and declined to 142.0 percent in 1983, for

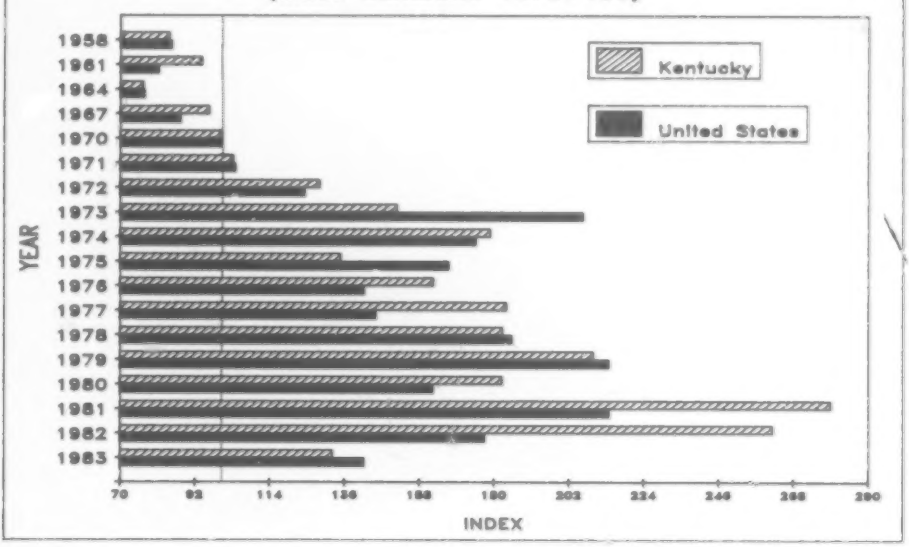
TABLE 12-B
Total Farm Labor and Proprietors' Income
Kentucky and United States, 1958-1983

Year	Percent of Total Personal Income		Index Numbers: 1970 = 100	
	Kentucky	United States	Kentucky	United States
1958	8.2%	4.3%	84.6	85.3
1961	7.9	3.6	94.2	81.4
1964	5.6	2.8	76.9	77.1
1967	5.4	2.6	96.4	87.9
1970	4.3	2.3	100.0	100.0
1971	4.1	2.2	103.5	104.0
1972	4.6	2.4	128.9	124.5
1973	4.9	3.5	151.6	206.4
1974	5.0	2.7	179.1	174.9
1975	3.5	2.4	135.0	166.9
1976	3.8	1.9	162.4	141.8
1977	3.8	1.7	183.9	145.4
1978	3.4	1.9	182.7	185.5
1979	3.5	2.0	209.4	214.0
1980	2.8	1.4	182.6	162.1
1981	3.8	1.6	279.2	214.0
1982	3.4	1.2	262.1	177.5
1983	1.6	0.9	132.7	142.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

a total decline of 72 percentage points, which was only one-half the Kentucky decline. To highlight the recent changes in agricultural income, the Kentucky and national index number series for labor and proprietors' income are plotted in Figure 12.

Figure 12
Changes in Farm Income
Kentucky & United States, 1958, 1961, 1964, 1967 & 1970–1983
(Index numbers: 1970=100)



13. Construction Industry Trends and Recent Changes

Statistical measurement and description of the construction industry is complicated by several factors. Data series that are consistently defined over long time periods for both the state and the nation are especially scarce. Some of the available series also differ in origin from federal government agencies or private organizations. Construction activity includes residential and nonresidential building and nonbuilding construction. The nonresidential buildings group includes both private and government buildings, and nonbuilding construction includes highways, bridges, and dams. Other features of this industry are the high degree of fluctuation in construction activity during any year because of weather and other seasonal influences, and over the years because of business cycles. The product of the construction industry is durable in nature. As a general rule, durable goods production is more affected by business cycles than is nondurable goods production, because of the postponable nature of durable goods purchases.

The construction industry is also strongly influenced by interest rates which fluctuate widely over the business cycle. In recent years, interest rates have been unusually high by historical standards, especially in the case of "real" interest rates (nominal interest rates less the inflation rate); this has depressed construction activity. Also, real interest rates have been unusually resistant to decline in recent years.

Construction activities in Kentucky and the United States are compared in Table 13 in terms of three economic series for the 14-year period 1970-83. Because the original values in the three series differ greatly in magnitude, comparison is made easy by converting the yearly amounts to percentages of the 1970 values. The series are labeled A, B, and C for easy reference. Series A (income of wage and salary workers in construction) and Series B (value of construction contracts awarded for the total of buildings and other activity) encompasses all types of construction, while Series C (value of construction contracts awarded for residential and nonresidential buildings) is narrower in that it excludes construction of highways, bridges, and dams.

Another important difference between the series is that total value of *contracts awarded* in a particular year is not necessarily the same as total value of construction *activity* in that year. Differences result mainly from a contract being awarded in one year while much of the construction activity occurs in later years. In contrast, total income of wage and salary workers in the construction industry reflects the actual amount of construction work in a particular year and, therefore, the changing levels of employment and/or wage rates. For these various reasons, each of the three series shown in Table 13 reflects a different view of the construction industry. Series A and B are

TABLE 13

Measures of Construction Activity, Kentucky and United States, 1970-1983
(Index Numbers: 1970 = 100)

	Wage and Salary Income, Contract Construction		Value of Construction Contracts Awarded			
			Total Building and Nonbuilding		Residential and Nonresidential Building	
	Series A		Series B		Series C	
Year	Kentucky	United States	Kentucky	United States	Kentucky	United States
1970	100.0	100.0	100	100	100	100
1971	110.2	108.5	141	117	125	123
1972	119.9	117.0	127	133	159	147
1973	130.8	130.5	125	145	139	158
1974	130.9	138.5	126	137	138	138
1975	130.9	135.5	122	136	124	125
1976	149.2	145.9	154	161	155	150
1977	167.5	161.1	190	205	217	196
1978	215.2	188.5	294	234	265	244
1979	240.3	217.4	258	247	240	253
1980	224.4	227.8	185	217	213	236
1981	220.3	240.1	290	225	240	244
1982	220.0	237.9	224	229	199	241
1983	200.4	242.2	226	282	271	315

Source: F.W. Dodge Corp., Division of McGraw-Hill, Inc.; and U.S. Department of Commerce, Bureau of Economic Analysis; through the Kentucky Economic Information System.

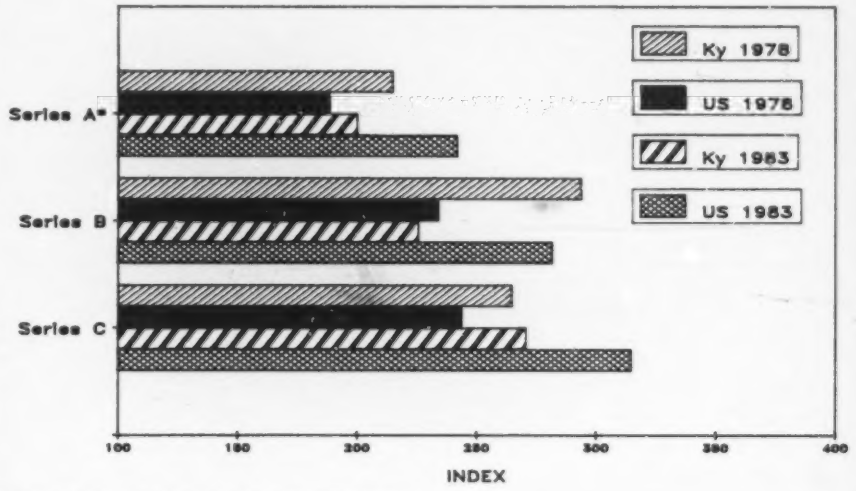
similar in coverage (essentially all construction activity) while Series B and C are similar in type of data reported (value of contracts awarded).

Series A, for wage and salary income, shows relative weakness in the Kentucky construction industry in the 1980s. From 1970 to about 1977, the Kentucky values are similar to the national values, but Kentucky increased relative to the nation in 1978 and 1979 and began to fall relative to the nation after 1980. By 1983, the Kentucky index number was 42 percentage points below the national value, with Kentucky declining by 20 points in 1983 while the nation increased by 4 points. Much the same relationship is shown in Series B, although Kentucky has fluctuated widely from year to year in the period since 1978. In 1981-83, the Kentucky index declined by 64 percentage points while the national index increased by 57 points. For residential and nonresidential building contracts awarded (Series C) between 1981 and 1983, the Kentucky index numbers declined 41 percentage points in 1982 and increased 72 points in 1983, while the national index numbers declined 3 points in 1982 and increased 74 points in 1983.

Comparing 1983 with 1978 for all three series, the Kentucky index numbers were lower in 1983 by 15 percentage points for Series A, lower by 68 points for Series B, and higher by 6 points for Series C. National construction activity, in contrast, increased according to all three series—by 53 percentage points for Series A, by 48 points for Series B, and by 71 points for Series C. Clearly, Kentucky has seriously lagged behind the nation in construction activity since 1978. To illustrate these differences, Figure

13 compares the 1978 and 1983 index numbers for the three series for Kentucky and the United States.

Figure 13
Measures of Construction Activity
Kentucky and the United States, 1978 & 1983
(Index numbers: 1970=100)



* See Table 13 for Series Description

GLOSSARY

This glossary provides an overview of the components of personal income, with their respective definitions. It is organized in a manner intended to highlight each component and then its subcomponent(s).

PERSONAL INCOME. Personal Income is the income received by persons from all sources, that is from participation in production, from both government and business transfer payments, and from government interest. Personal income is the sum of Wage and Salary Disbursements, Other Labor Income, Proprietors' Income, Rental Income of Persons, Personal Dividend Income, Personal Interest Income, and Transfer Payments, less Personal Contributions for Social Insurance. Persons are defined as individuals, nonprofit institutions, private noninsured welfare funds, and private trust funds. The last three are referred to as "quasi-individuals" and make up only a small part of the total number of persons.

PER CAPITA PERSONAL INCOME. This is total personal income of the residents of a given area divided by the resident population of the area. Midyear (July 1) estimates of population are used (prepared by the Bureau of the Census), although income is measured as a flow over the year.

WAGES AND SALARIES. Wages and Salaries are defined as the monetary remuneration of employees, including compensation of corporate officers; commissions, tips and bonuses; and receipts-in-kind that represent income to the recipients. They are measured before such deductions as social security contributions and union dues. The term "disbursements" used in conjunction with wages and salaries indicates that retroactive wages and salaries are counted when paid rather than when earned.

PRIVATE NONFARM WAGES AND SALARIES. Approximately 95 percent of Private Nonfarm Wages and salaries are derived from tabulations by the State employment security agencies from their State employment security reports (form ES-202), as part of the administration of the State unemployment insurance (UI) contribution program. To these UI-based data, which do not precisely meet the statistical and conceptual requirements of the personal income estimates, BEA makes some adjustments and additions, primarily a conversion from a place-of-work basis to a place-of-residence basis. (See discussion of the Residence Adjustment, below.) In addition, BEA supplements the UI-based data for some industries, for elements of UI-covered industries that remain outside the scope of the UI program, and for the five industries that are treated as noncovered (railroad transportation, private households, private educational services, membership organizations, and "other").

GOVERNMENT NONFARM WAGES AND SALARIES. The estimates of Government Wage and Salary Disbursements include payrolls of federal civilian, federal military, state education, state government excluding education, local education, and local government excluding education, and of governmental enterprises. These latter are government activities in which the operations are financed primarily by the sales of goods or services to the public rather than by general revenues.

FARM WAGES AND SALARIES. This component of Personal Income is measured as the sum of cash wages of hired farm labor, the pay-in-kind of hired farm labor, and the salaries of officers of corporate farms. This estimate is similar to the U.S. Department of Agriculture's state estimates of farm labor expenses, in that both measures (BEA's and USDA's) exclude payments for contract labor. In the BEA estimates contract labor is included with wages and salaries in agricultural services. The USDA estimates also exclude the salaries of officers of corporate farms.

OTHER LABOR INCOME. This component of Personal Income consists of employer contributions to privately administered pension and welfare funds and of a few small items, including directors' fees, compensation of prison inmates, and miscellaneous judicial fees.

PROPRIETORS' INCOME. This component of Personal Income is the income, including income-in-kind, of sole proprietorships, partnerships, and of tax-exempt cooperatives. Dividends and monetary interest received by proprietors of nonfinancial businesses and rental income received by persons not primarily engaged in the real estate business are excluded; these incomes are included in Dividends, Net Interest, and Rental Income of Persons, respectively (see below).

PERSONAL CONTRIBUTIONS FOR SOCIAL INSURANCE. These contributions, which are subtracted from income to derive Personal Income, consist of payments by employees, self-employed, and other individuals who participate in the following programs: federal old-age, survivors, disability, and hospital insurance; supplementary medical insurance; State unemployment insurance; railroad retirement insurance; government retirement; and veterans life insurance.

PERSONAL DIVIDEND INCOME. This component of Personal Income measures the dividends received by persons from all sources. Dividends are payments in cash or in other assets, excluding stock, by corporations organized for profit to noncorporate stockholders who are U.S. residents.

PERSONAL INTEREST INCOME. This component of Personal Income is the interest income of persons from all sources. In addition to monetary interest flows, personal interest income includes flows of interest-in-kind (imputed interest).

RENTAL INCOME OF PERSONS. This component of Personal Income is the monetary income of persons from the rental of real property (excluding the income of persons primarily engaged in the real estate business), the imputed net rental of owner-occupants of nonfarm dwellings, and the royalties received by persons from patents, copyrights, and rights to natural resources.

TRANSFER PAYMENTS. This component of Personal Income measures payments to persons for which they do not render current services. Generally, they are paid in monetary form. At the State level, approximately 90 percent of transfer payments are measured on the basis of directly reported data; the remaining 10 percent are estimated on the basis of indirect, but generally reliable, data. The major categories of transfer payments include: Government Payments to Individuals, Business Payments to Individuals, and Payments to Nonprofit Institutions.

> **GOVERNMENT PAYMENTS TO INDIVIDUALS.** Included in this category are: Retirement, Disability, and Health Insurance Benefit Payments; Unemployment Insurance Benefit Payments; Federal Education and Training Assistance Payments; Income Maintenance Benefit Payments; Veterans Benefit Payments; and Other Payments to Individuals.
>
> **BUSINESS TRANSFER PAYMENTS.** Business Transfer Payments to individuals include allowances for consumer bad debts, cash prizes, auto liability payments for personal injury, medical malpractice liability payments, railroad and miscellaneous liability payments, losses due to forgery, and unrecovered thefts.
>
> **PAYMENTS TO NONPROFIT INSTITUTIONS.** These include Federal Government Payments such as to private nonprofit hospitals for construction and, as part of Federal scholarships, to private educational institutions for the educational cost portion; State and Local Government Payments for foster home care, educational assistance payments to nonprofit institutions, and other payments; and Business Payments to nonprofit institutions in the form of corporate gifts of money, securities, or real property.

RESIDENCE ADJUSTMENT. This is the adjustment that is made to Wages and Salaries, Other Labor Income, and Personal Contributions for Social Insurance (with minor exceptions) to place them on a where-received basis. The adjustment is necessary because the components of Personal Income are estimated from data that are reported by point of disbursement (place of work). Essentially, the State Residence Adjustment is the sum of the county residence adjustments. The amount of the residence adjust-

ment for each county is the total inflows of labor income of intercounty commuters minus the total outflows. These flows are calculated as the product of labor income in the county of work multiplied by a residence adjustment factor, which is the ratio of the wages of workers who work in the county but reside in another county (in-commuters) to the total wages of all employees working in the county (residents and nonresidents). The residence adjustment factors are computed at decade intervals, based upon commuting information from the decennial census.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income: Estimates for 1929-83 and a Statement of Sources and Methods*, (Washington, D.C.: U.S. Government Printing Office) 1984.